

In This Issue—*Battery and Electrical Service*

MOTOR AGE

Vol. L
Number 19

PUBLISHED WEEKLY AT 5 SOUTH WABASH AVENUE
CHICAGO, NOVEMBER 11, 1926

Thirty-five Cents a Copy
Three Dollars a Year

Remember These Four Things

Here are four vital facts for every automobile dealer to bear in mind if he would operate his business at a profit.

1. The automobile business is one of the few in which all merchandise is eventually returned.

Pick a car with a high resale value.

2. Trades and service expense are the chief things to watch—if you want to make money.

Select a car that prevents leaks in your used car and service departments.

3. The great mass of people start with low priced cars.

So naturally that's the field where competition is hottest.

4. The progressive people always advance. They buy better homes, better clothes, better motor cars.

They are the people who are building the United States.

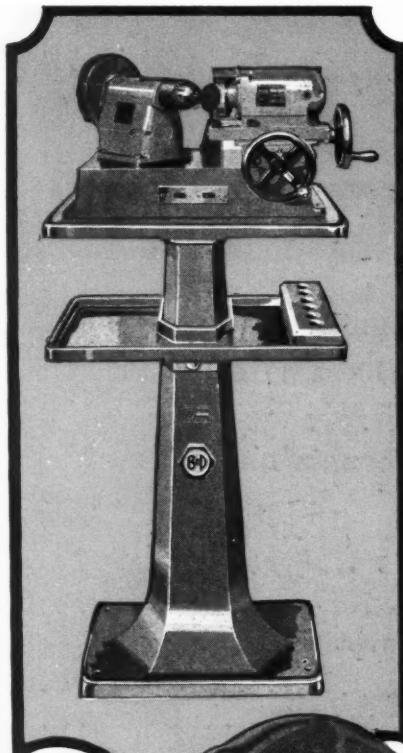
They are the people who buy the Jordan.

Edward S. Jordan
President
Jordan Motor Car Company, Inc.
Cleveland

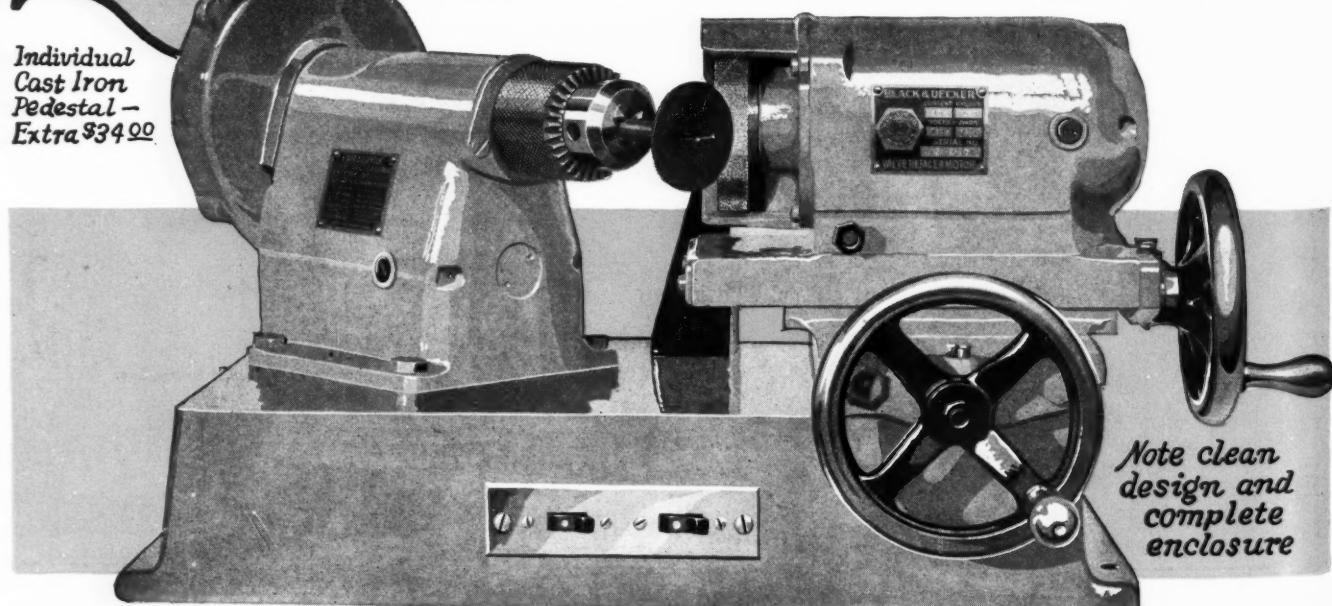
new! Black and Decker №45 Electric Valve Refacer

\$120 00

*Universal Motors-
Operates on Direct or
Alternating Current*



*Individual
Cast Iron
Pedestal -
Extra \$34.00*



Another Black & Decker Achievement

Universal Motors—This is a two-motor machine. One motor drives the work head; the other drives the grinding wheel. Both motors are of the Universal type, so the machine may be operated on Direct or Alternating Current.

Permanent Angle Setting—As practically all car, truck and bus engines now have 45 degree valves, the work head of this new Electric Refacer is permanently set at a 45 degree angle. Cannot get out of adjustment.

Diamond Truing Attachment for Valve Seat Grinding Stones—No extra charge is made for this Diamond Truing Attachment, which enables you to reface your Black & Decker Valve Seat Grinding Stones. Valves and Seats must correspond, as both are refaced by the same Machine.

Other Standard Equipment—Truing Attachment for Grinding Wheel—V-Block Attachment for Grinding Ends of Valve Stems—Special Jacobs Three-Jaw Refacer Chuck—Electric Cable and Attachment Plug—individual switches for motors built in base.

Indications are that demand for this new Refacer will exceed supply for awhile. It is recommended that you get your order in early

—YOUR JOBBER CAN SUPPLY YOU—

THE BLACK & DECKER MFG. CO.

TOWSON, MD., U.S.A.

Black & Decker Mfg. Co., Limited, Toronto, Ontario. Black & Decker, Limited, London, England.

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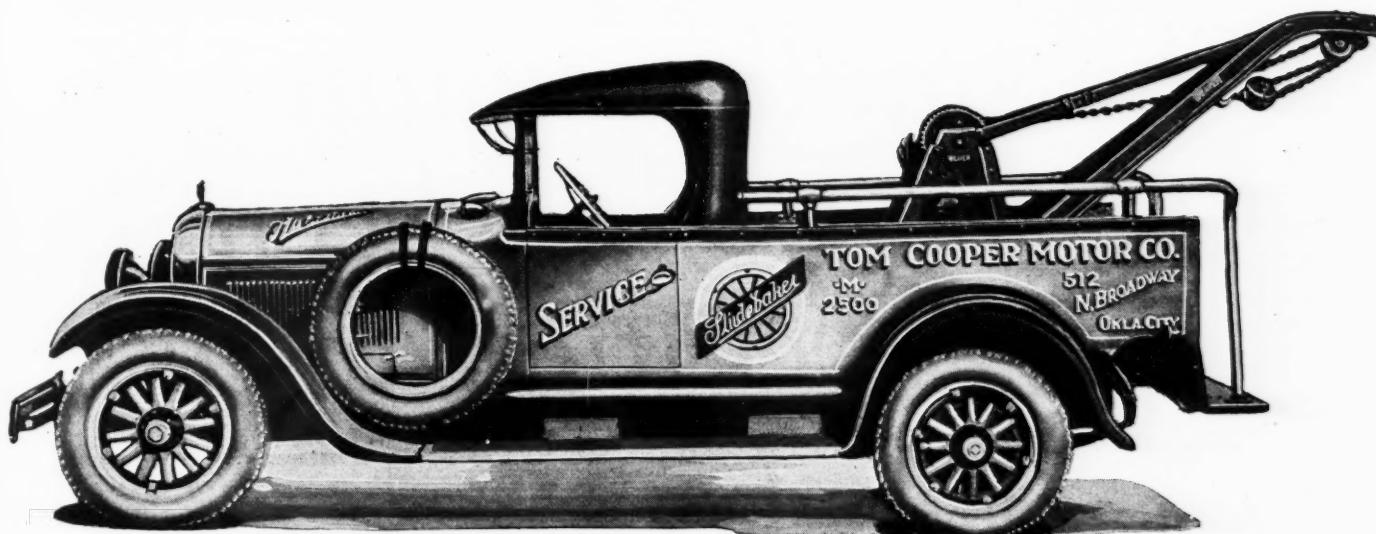
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WEAVER

Weaver Auto Crane Model G

Special features include increased height and overhang, adjustment of height of boom by Crane's own power, operation from ground or car, capacity 6000 pounds.

The Modern Garage Has Towing Service Or It Isn't Modern

TOWING EQUIPMENT is a vital business asset of the modern garage. Without it, many a big repair job is towed up to someone else's cash register.

Have it. Weaver has so thoroughly solved the price problem, that any service station—large or small—may have towing devices without excessive outlay.

Ask for details—literature that tells you about Weaver towing equipment.

Next year be fully prepared for towing service profits.

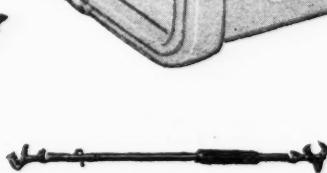
WEAVER MANUFACTURING CO.
Springfield, Illinois, U. S. A.

WEAVER CANADIAN CO., Ltd., Chatham, Ont.



Weaver Auto Ambulance Model C

Made especially for towing cars and light trucks. Only one man necessary on job which would ordinarily require several.



Weaver Towing Pole, Model D

Jaw clamps at each end which are universal in application afford absolutely rigid connection and the hooks which fasten into them make possible towing over even the roughest roads, rounding corners, etc.



Weaver Safety Service Can

Handy to carry an extra supply of gas for stalled cars. Spill-proof. No funnel needed to reach even the hardest-to-get-at gas tank.

“The small amount of service has been a revelation to us!”

Says a letter from
C. Royce Hough
 President
 Hough Motor Company
 Washington, D. C.

EVERY automobile dealer knows the relation between servicing costs and net profit. Stutz dealers have been pleasantly surprised in getting a “first-year car” that actually requires less servicing than cars built practically unchanged for many years.

This is one of the reasons why they are finding their net profits per car to be well above their estimates.

If you want to do more selling and less servicing, you will be interested in the Stutz Dealer Proposition. We suggest you write for it.

STUTZ MOTOR CAR CO.
of AMERICA, Inc., Indianapolis

Stutz Motor Car Company of America, Inc.,
Indianapolis, Indiana

Gentlemen:

Last December we investigated the New Stutz “8,” and after giving the car a painstaking and thorough examination, we gave up the franchise for a popular high-priced car that we had handled for ten years in this territory, and accepted the New Stutz franchise, which has proven most advantageous.

After seven months’ selling and servicing the New Stutz, we find the car to be even better in performance and safety features than we anticipated, and the small amount of service necessary in this period has been a revelation to us. We have no hesitancy in saying that in an experience of over twenty years in the automotive field we know of no car that gives as much pleasure in selling and servicing as the New Stutz, and we consider the account to be the most desirable one in the market today.

The cars we have sold have exceeded the expectations of our customers, by giving an economical road performance with an unrivaled degree of safety, greater than they expected.

We congratulate you upon the results you have achieved with the New Stutz, and wishing you further success, we are,

Yours very truly,
 HOUGH MOTOR COMPANY


 President



New
SAFETY STUTZ

MOTOR AGE

Reg. U. S. Pat. Off.

VOL. L.

NO. 19

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Motor Age is published every Thursday by

CHILTON CLASS JOURNAL COMPANY

Mallers Building, 5 South Wabash Avenue, Chicago
 C. A. MUSSelman, President and General Manager
 J. S. HILDRETH, Vice-Pres. and Director of Sales
 W. I. RALPH, Vice-Pres.

DAVID BEECROFT, Vice-Pres. J. H. COLLINS, Vice-Pres.
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 Telephone: Central 7045

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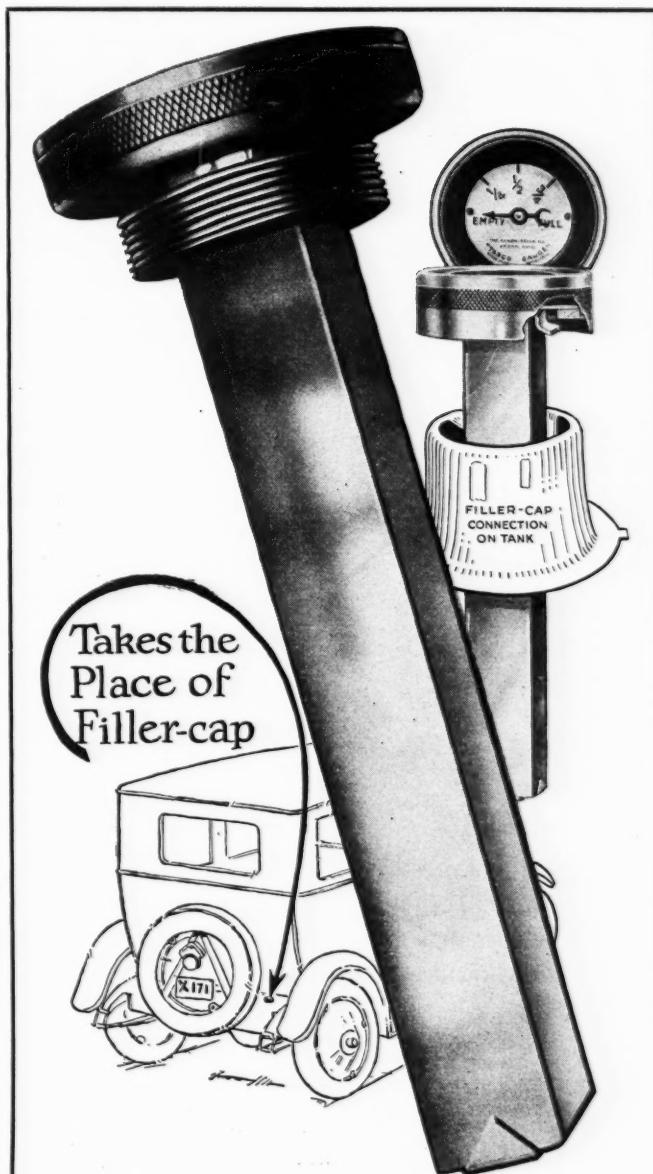
New York—U. P. C. Bldg., 239 West 39th St.; Phone
 Pennsylvania 0080.
 Detroit—7338 Woodward Ave.; Phone Empire 4890.
 Cleveland—540 Guardian Bldg.; Phone Main 6860.
 Philadelphia—56th and Chestnut Sts.; Phone Sherwood 1424.
 Indianapolis—519 Merchants Bank Bldg.; Phone Riley 3212.
 Owned by United Publishers Corporation, 239 West 39th Street, New
 York; ANDREW C. PEARSON, Chairman Board of Directors; FRITZ J.
 FRANK, President; C. A. MUSSelman, Vice-President; F. C. STEVENS,
 Treasurer; H. J. REDFIELD, Secretary.

SUBSCRIPTION RATES: United States, Mexico and U. S. Possessions, \$3.00 per year; Canada, \$5.00 per year; all other countries in Postal Union, \$6.00 per year; single copies, 35 cents.

Member of the Audit Bureau of Circulations.
 Member, Associated Business Papers, Inc.

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Subscriptions accepted only from the Automotive Trade
 Entered as Second Class Matter, Sept. 19, 1899, at the Post Office at
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So Simple

"Take out your gas tank cap,—

"Insert a TASCO gauge in its place,—

"And that's all there is to it."

There's your whole sales talk for TASCO Gasoline Gauges,—then the profits are yours.

If your customers drive 1926 Model "V" Chevrolets, give them Type "K" TASCOS and if they drive Stars give them Type "J" TASCOS. Both these types

Retail for \$1.50

Sales come just as easily with Ford owners when you show them the Ford types which retail for \$1.25.

The Akron-Selle Co.

"41 Years in Business"

Akron, Ohio

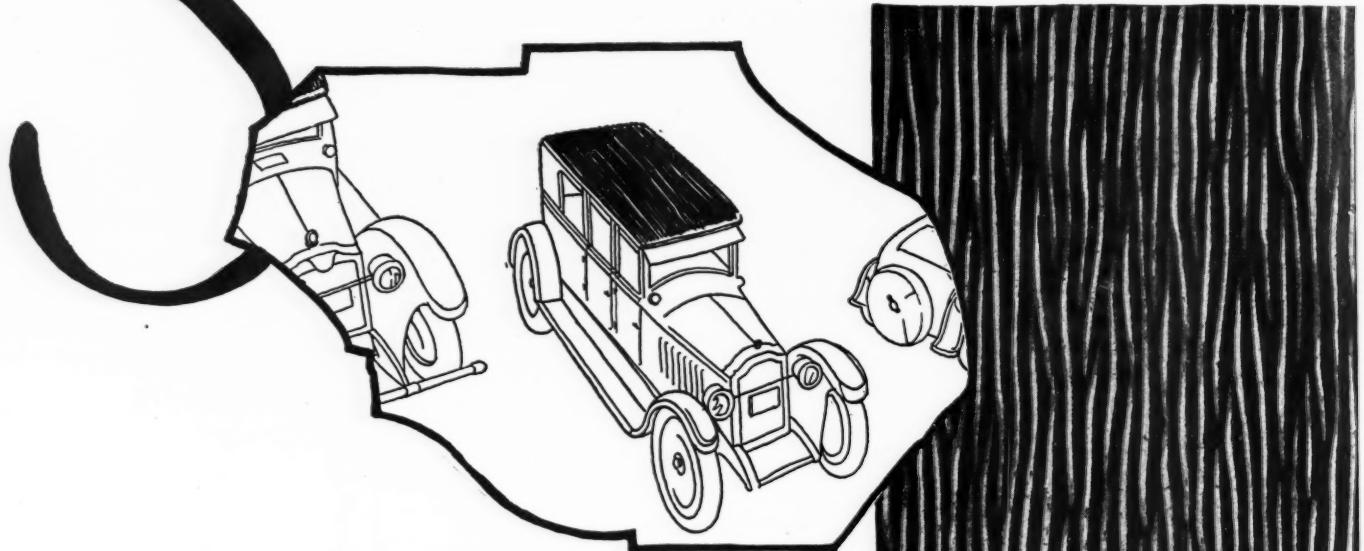
MAYDWELL & HARTZELL, INC.

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SATISFACTION!

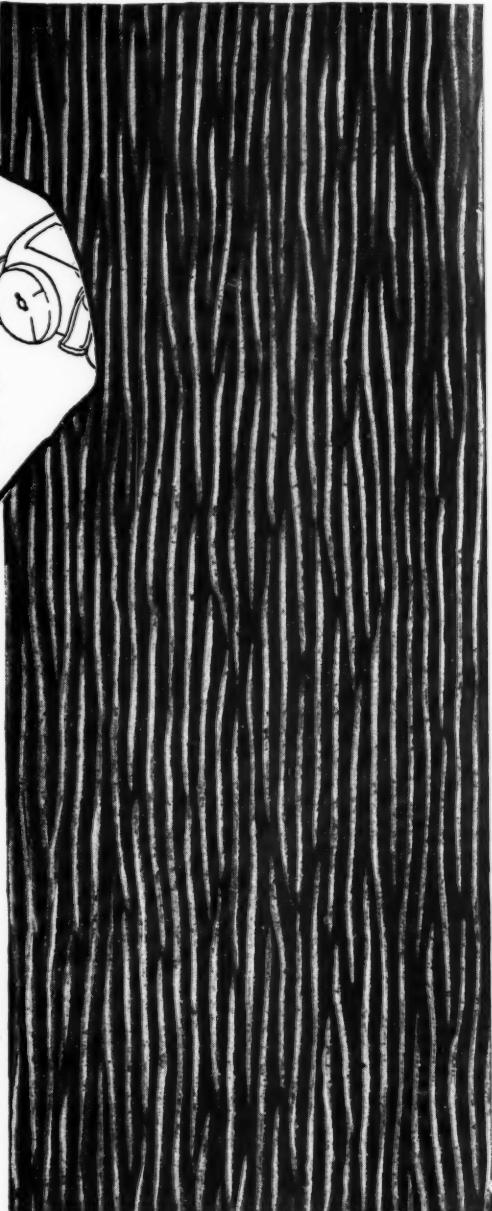


The use of du Pont Everbright PONTOP assures satisfaction. It has those qualities so essential for closed car decks—ruggedness, durability and lasting beauty.

The quality of du Pont Everbright PONTOP is built in. It has a ruggedness that assures maximum service, and a finish that marks a distinct advance in permanency of lustre for rubber deck materials.

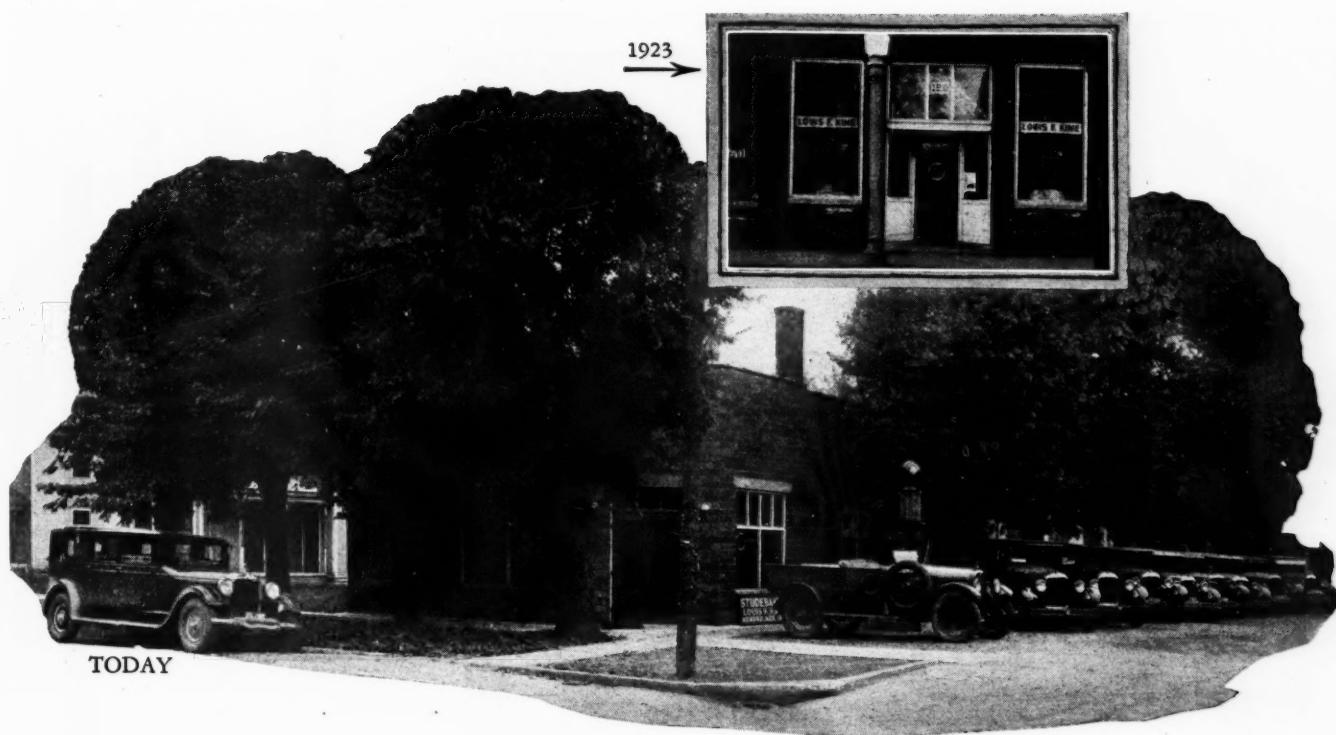
Du Pont Everbright PONTOP has a permanency of finish heretofore unknown in this type of material. It retains its rich appearance after long use and exposure in sun and rain.

Du Pont Everbright PONTOP solves one of your most perplexing problems—the rapid dulling of the deck while the rest of the car still looks bright and new.



E. I. DU PONT DE NEMOURS & CO., Inc.
Fabrikoid Division, FAIRFIELD, CONN.

DU PONT
EVERBRIGHT
PONTOP



Profits in 1926 three times his capital in 1923

LOUIS F. KIME sells automobiles in Rensselaer, Indiana, a town of 2912 population. In 1926 he will make more than three times as much *profit* as he had *capital* when he signed the Studebaker franchise in 1923.

Only 1.43% of all cars registered the first of the year in Kime's county were Studebakers. But his sales for the first 9 months of 1926 were equal to 8.41% of all new cars registered. Kime's sales are growing, just like the sales of Studebaker dealers in hundreds of small towns and large cities!

"Every person in this territory respects a Studebaker nameplate," said Mr. Kime. "My best profits come from repeat sales. The second and third time you sell you make extra profits—'second helping' sales are easy and quick."

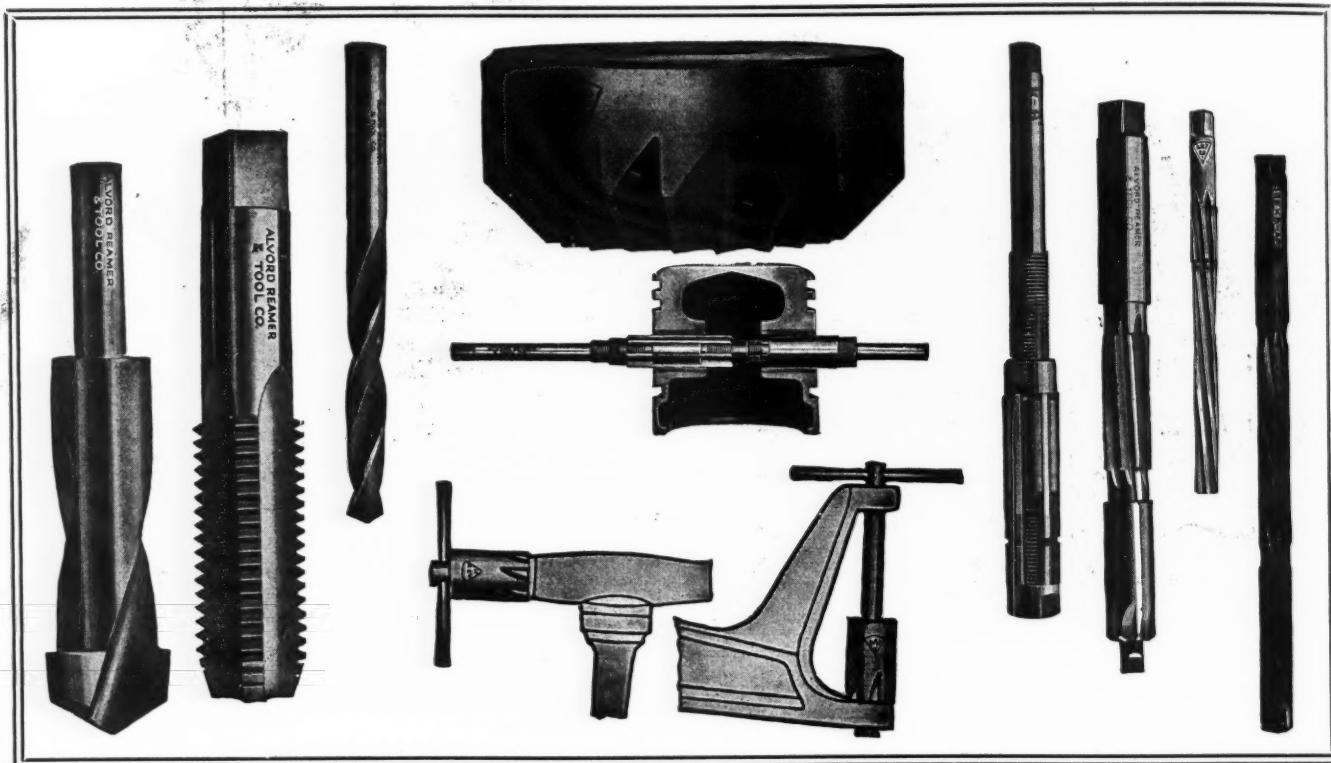
"If a man really wants to stay in the automobile business—and make more money—he should get a Studebaker franchise *somewhere*."

If Studebaker is inadequately represented in your locality, or not represented at all, write us at once regarding the sales rights for your territory. Your inquiry will be held strictly confidential. Address Dept. 51, The Studebaker Corporation of America, South Bend, Indiana.



LOUIS F. KIME

STUDEBAKER



TOOLS THAT HELP YOU PROFIT BY— FLAT RATES!

Built ESPECIALLY for Repair Work



FREE!

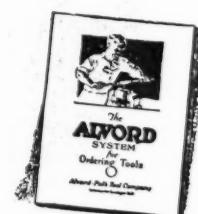
Handy Wall Chart listing make, model and year of car, beside each reamer repair job and individual serial number of right reamer for job. Eliminates guess-work about fractional sizes and makes ordering easy. Supplied either by Alvord-Polk jobbers or by manufacturer direct.

Alvord Polk Tools have been the choice of repair-shops everywhere for over twenty years.

No worthwhile improvement has ever been too involved—or small—to prevent Alvord Polk adopting it to the line.

In these days of flat rates all kinds of comparative tests show these tools are more essential than ever—the shop's only reliable source of profit when jobs must be done **fast and right!**

Ordering Chart and Catalog lists repair jobs by cars, models, years and individual serial numbers of right reamer for each job. Handiest trouble-proof small tool ordering scheme ever devised. Write for your copy and name of nearest jobber having system installed. **ALVORD POLK TOOL CO.**, Millersburg, Pa.



This sixty-four page catalog includes complete Alvord-Polk line and full information on easy ordering system.

ALVORD - POLK

Tools for Repair Shops



Selling Gabriels is the *logical* thing for any car dealer to do—because of the easy, liberal profits and also because Gabriels give *greater riding comfort* and satisfaction to the car owner.

40 car manufacturers equip with Gabriels.

25 drill their car frames for Gabriels.

3200 Gabriel stations sell Gabriel Snubbers on a 30-day money-back guarantee.



Write for the Gabriel Sales Proposition—a fair and square money maker

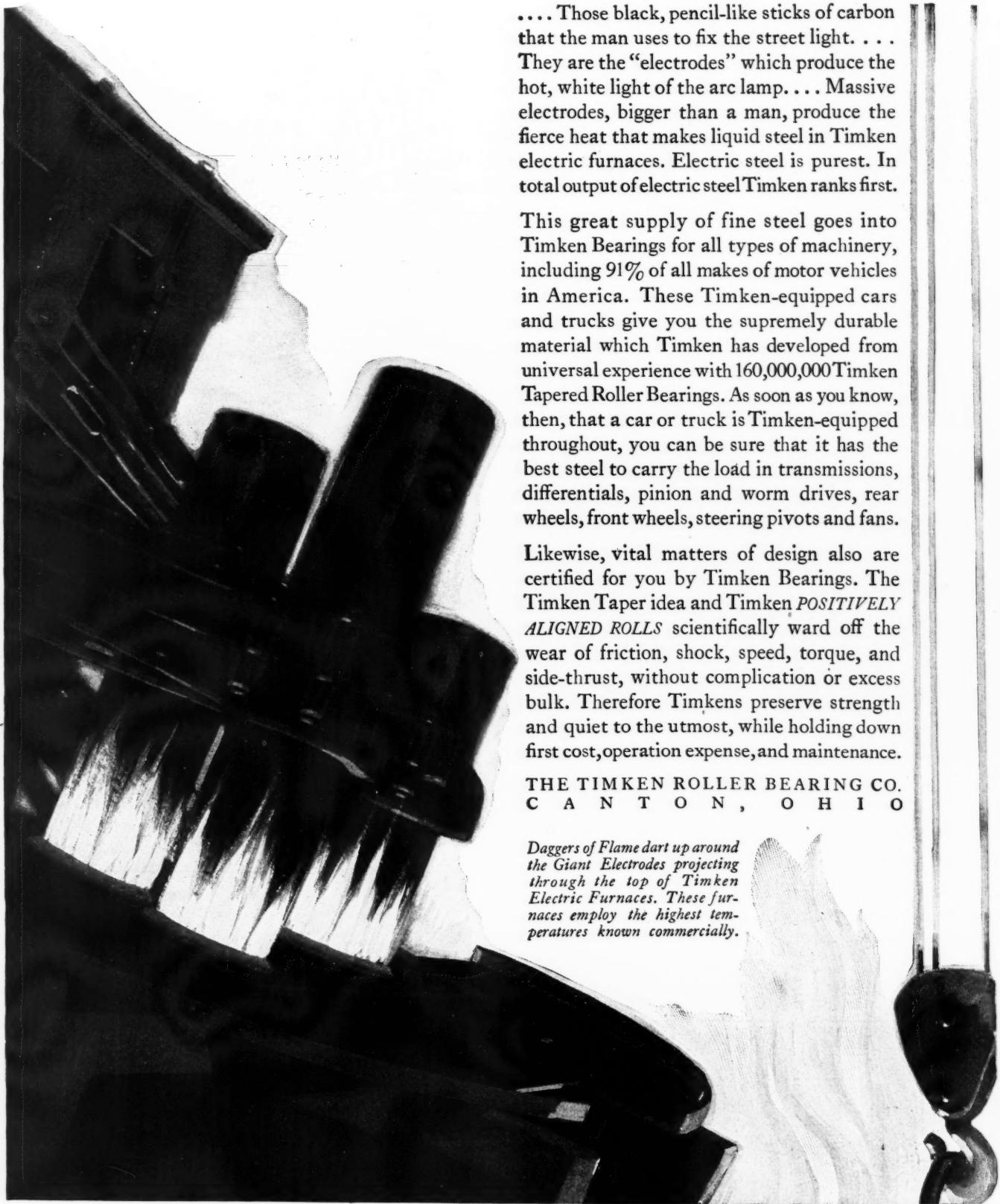
The Gabriel Snubber Manufacturing Co.
1415 East 40th Street, Cleveland, Ohio

Toronto, Canada

GABRIEL SNUBBERS

Gabriel—and Only Gabriel—Is a Snubber

Certified Material and Design



.... Those black, pencil-like sticks of carbon that the man uses to fix the street light. They are the "electrodes" which produce the hot, white light of the arc lamp. Massive electrodes, bigger than a man, produce the fierce heat that makes liquid steel in Timken electric furnaces. Electric steel is purest. In total output of electric steel Timken ranks first.

This great supply of fine steel goes into Timken Bearings for all types of machinery, including 91% of all makes of motor vehicles in America. These Timken-equipped cars and trucks give you the supremely durable material which Timken has developed from universal experience with 160,000,000 Timken Tapered Roller Bearings. As soon as you know, then, that a car or truck is Timken-equipped throughout, you can be sure that it has the best steel to carry the load in transmissions, differentials, pinion and worm drives, rear wheels, front wheels, steering pivots and fans.

Likewise, vital matters of design also are certified for you by Timken Bearings. The Timken Taper idea and Timken *POSITIVELY ALIGNED ROLLS* scientifically ward off the wear of friction, shock, speed, torque, and side-thrust, without complication or excess bulk. Therefore Timkens preserve strength and quiet to the utmost, while holding down first cost, operation expense, and maintenance.

THE TIMKEN ROLLER BEARING CO.
CANTON, OHIO

Daggers of Flame dart up around the Giant Electrodes projecting through the top of Timken Electric Furnaces. These furnaces employ the highest temperatures known commercially.

TIMKEN *Tapered
Roller* **BEARINGS**

Hennecke and Storz to Lead A. E. A. the Next Year

Eastern Manufacturer and Western Jobber Elected President and Vice President, Respectively, As Larger Merchandising Program Is Launched

By SAM SHELTON

LAUNCHING a greater and more intensive campaign for the merchandising of automotive accessories and equipment, the Automotive Equipment Association held into its eleventh annual convention at the Coliseum in Chicago this week. At the same time it was holding its eighth annual exposition at the Coliseum, at which nearly 250 manufacturers displayed their lines of automotive accessories and equipment.

As a background for the greater marketing campaign that the association is developing, it elected as president and vice president two widely known leaders in the industry, one from the Atlantic coast and the other from the Central West. The new president is Earl V. Hennecke, vice president and general manager of the Moto-Meter Co., Inc., of Long Island City, N. Y. The new vice president is A. C. Storz, of the Storz Western Auto Supply Co., Omaha, Neb. Mr. Hennecke, who was elevated from the position of vice president, represents the manufacturing branch, and Mr. Storz the wholesale distributing branch. The retiring president is N. F. Ozburn of the Ozburn-Abston Co., Memphis, Tenn.

As already indicated the predominant note of the convention is the development of a greater market for automotive merchandise, an undertaking that will bring greater prosperity to the manufacturing, wholesaling and retailing branches of the industry.

The merchandising work of the association was given a prominent part on the program, the second day being set apart for that subject. Following an invocation by the Rev. Samuel Schwartz, an address on "Opportunities



E. V. Hennecke, new president of the Automotive Equipment Association, and vice president and general manager of the Moto-Meter Co.

for Merchandising as Seen by a Car Distributor," was given by C. B. Warren, president of the Warren-Nash Co., New York City. Mr. Warren also is president of the National Automobile Dealers' Association. Mr. Warren's company is one of the largest automobile distributing organizations in the country.

Another speaker on the merchandising program was William G. Gow, service manager of the Studebaker Sales Co., Newark, N. J., whose subject was "Opportunities for Merchandising as Seen by a Service Manager." Another feature of the merchandising session was the report of the association's special Market Development Committee which has been considering ways and means to greatly enlarge the merchandising activities of the association.

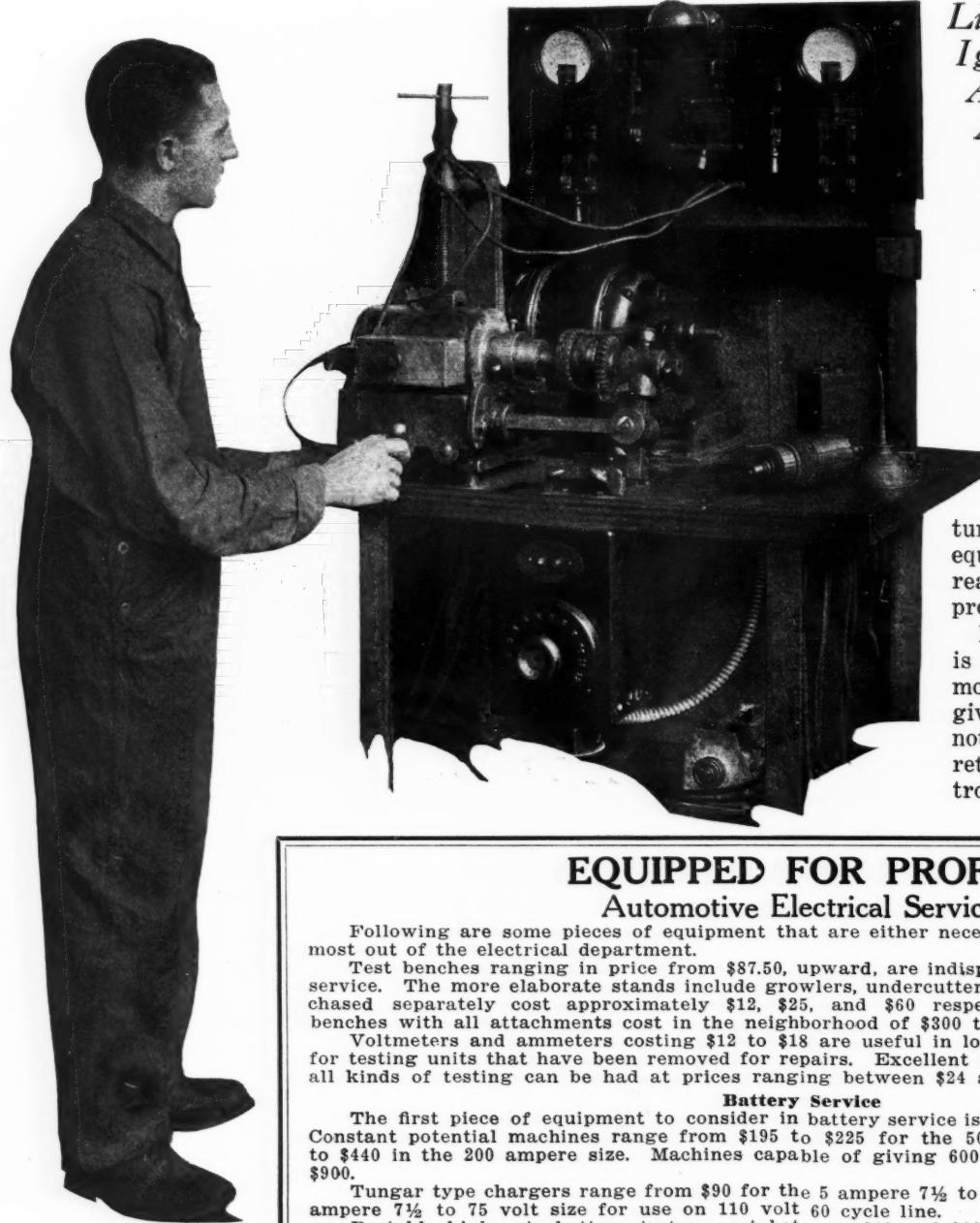
The merchandising work already has been greatly expanded in the last year under the direction of Arthur R. Mogge, merchandising director, whose report was made to the convention. Since the last convention Mr. Mogge has added four field representatives to his staff and these men have been active in holding

ing sales development meetings for jobbers and dealers in all sections of the United States and Canada. These field representatives are M. D. Graham and Henry Kirkland, who have been on the staff since February, and John Hall and Elmer Brown, who have been added within the last few months.

In the course of the year 230 merchandising meetings have been held with a total attendance of more than 40,000 dealers, garagemen, salesmen and others in the trade. In all these meetings the profit possibilities for the dealer in the development of the market for acces-

(Continued on page 32)

Electrical Service



A popular test bench that is designed to handle all types of generators and starting motors. A Bijur generator and regulator from a Packard car is being tested

Lighting, Starting and Ignition Units of the Automobile Require Attention Which Well Equipped Shops Can Give on Flat Rate Basis

By
C. EDWARD
PACKER

tunities for the dealer who is equipped properly to render a real service and make a good profit.

Nor is the direct profit all. It is conspicuous that the average motorists seeks the shop that gives *complete service*. He does not differentiate between carburetor adjustments and ignition trouble and if he is ever dis-

EQUIPPED FOR PROFIT

Automotive Electrical Service

Following are some pieces of equipment that are either necessary or useful in getting the most out of the electrical department.

Test benches ranging in price from \$87.50, upward, are indispensable in handling generator service. The more elaborate stands include growlers, undercutters, and small lathes which purchased separately cost approximately \$12, \$25, and \$60 respectively. The universal type benches with all attachments cost in the neighborhood of \$300 to \$400.

Voltmeters and ammeters costing \$12 to \$18 are useful in locating trouble on the car and for testing units that have been removed for repairs. Excellent combination sets suitable for all kinds of testing can be had at prices ranging between \$24 and \$41.

Battery Service

The first piece of equipment to consider in battery service is a reliable charging apparatus. Constant potential machines range from \$195 to \$225 for the 50 to 70 ampere size and \$375 to \$440 in the 200 ampere size. Machines capable of giving 600 amperes cost complete about \$900.

Tungar type chargers range from \$90 for the 5 ampere $7\frac{1}{2}$ to 30 volt size to \$220 in the 6-12 ampere $7\frac{1}{2}$ to 75 volt size for use on 110 volt 60 cycle line.

Portable high rate battery testers cost between \$40 and \$60.

Miscellaneous shop equipment as follows is useful or necessary in performing profitable

Equipment	Price	Equipment	Price	Equipment	Price
Battery steamer	\$15.00	Battery fillers	\$ 3.00	Group puller	\$ 2.40
Condenser for steamer	10.00	Acid syphon	10.00	Gas plate	2.50
Lead mold	1.50	Separator cutter	3.75	Lead pot	2.10
Plate press	15.00	Compound ladle	2.75	Cadmium meter	18.00
Plate burning rack	8.75	Post builders	2.00	Thermometer	.90
Battery carrier	1.25	Terminal tongs	1.25	Hydrometers	.75
Cell connector drills	1.25	Battery truck	10.00	Link molds	30.00
Electric drill	58.00	Lead burning outfit	30.00	Post molds	8.00

(complete less tanks)

THE shop that is equipped to care for the electrical troubles that develop on the modern automobile has a distinct advantage over the shop that is not so prepared.

With the generator, storage battery, starting motor, cigar lighter, head, cowl, dash, spot, dome, and other lights, also ignition coil and breaker points with condenser, and all the wiring and switches necessary to control and operate these items, there are many oppor-

unities for the dealer who is equipped properly to render a real service and make a good profit.

That being the case, and in view of the frequency with which electrical service is needed, that dealer is wise who seeing the motorists need prepares to supply it.

The storage battery needs attention more frequently than any other part of the electrical system. Distilled

Offers Good Profit Opportunity

water should be added every two weeks in summer and every month in winter.

Few motorists are prepared to do this themselves and the dealer who keeps in touch with them and furnishes this service is on the "ground floor" when extensive repairs are needed.

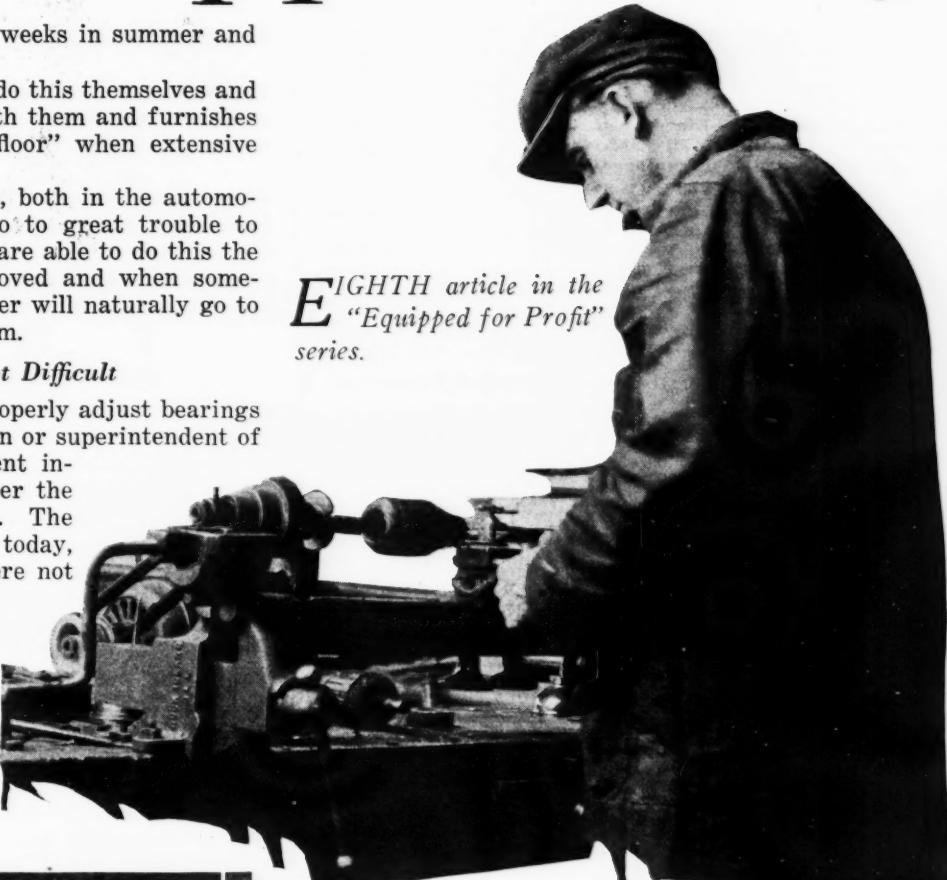
Many successful merchandisers, both in the automotive business and other lines, go to great trouble to keep customers coming. If they are able to do this the chances of extra sales are improved and when something is really needed the customer will naturally go to the place that has been serving him.

Electrical Service Not Difficult

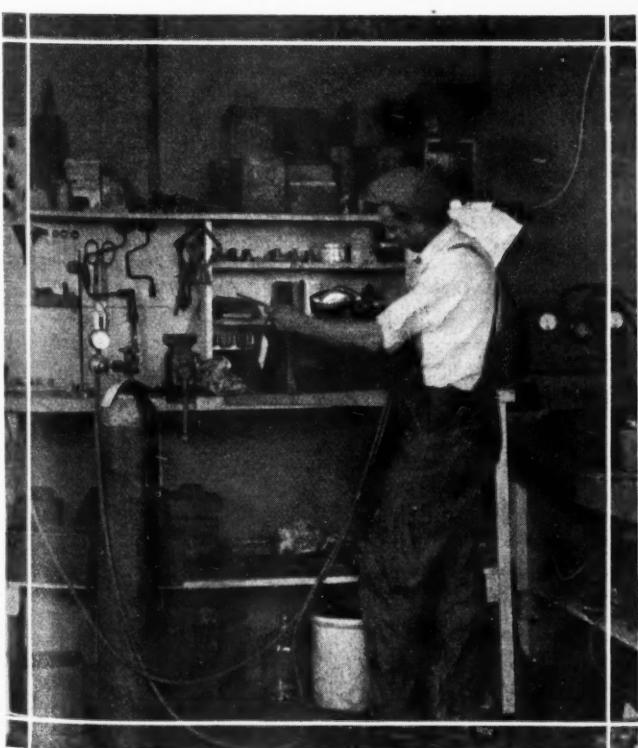
Any man with the ability to properly adjust bearings and fit pistons or serve as foreman or superintendent of a service station possess sufficient intelligence and education to master the art of handling electrical service. The electrical systems on the cars of today, while supplying services that were not thought of a few years ago, are much more simple to check up on and service than was the case a few years back.

Busy from morning to night this battery man is proving a good investment for his employer. This also is in the shop of a car dealer

*EIGHTH article in the
"Equipped for Profit"
series.*



This little lathe is indispensable for turning down commutators. This operation should be performed on practically every generator that is overhauled.



There are on the market today books that very clearly explain the fundamentals of electricity as applied to the motor car. The careful reading of one of these books and the use of a wiring manual should enable a man of fair intelligence to accurately locate trouble in any part of the system.

Simplicity of Present Day Cars

Among the American made passenger cars there is not one of consequence that uses the old two wire system. Present practice makes use of the frame of the car for one side of the circuit so that all wires are "alive" with relation to the frame.

As there are only two things that can happen to the circuits of a car this reduces our trouble shooting difficulty considerably. All current travels in a complete circuit—that is the current that leaves the battery travels out from the positive post along the wire (where the negative side of the system is grounded) to the light, or whatever is to be operated, and returns by way of

(Continued on next page)

Flat Rates on Electrical Service

On the old hourly basis there was little profit in electrical service—but with flat rates and the proper equipment to put speed and quality into each job there is a different story. Many shops that are equipped for profit find the following prices to be fair to the customer and to be high enough to show a good margin. This does not include obsolete equipment.

	Remove Repair and Replace on Car	Unit brought in off car —repair only
Generator	\$ 8.00	\$ 6.50
Starter	6.50	5.50
Combination Starter-Generator	12.50	11.00
Magnetics	8.00	6.50

Exceptions:

Generator on Cleveland	12.00	6.50
Generator on Marmon	10.00	8.00
Generator on Peerless	10.00	6.50
Generator on Stephens	10.00	6.50
Starter-Generator—Franklin	14.00	10.00
Starter-Generator—Lincoln	16.00	11.00
Starter-Generator—Wills Ste. Claire	18.00	11.00

Above covers labor only—all material extra.

BATTERY SERVICE

Reinsulate battery—6 V. 11 Plate	\$6.80
6 V. 13 Plate	7.15
6 V. 15 Plate	7.40
6 V. 17 Plate	8.15
6 V. 19 Plate	8.50
12 V. 7 Plate	8.65

Above charges include material, also removing and replacing battery in car and recharging.

Rental battery 25c a day.

Recharging only 75c for 6 volt battery—12 volt battery \$1.00.

(Continued from preceding page)

the frame to the other terminal of the battery. In traveling this circuit the flow can be interrupted—or we say we have an *open circuit*—as the result of a wire being broken, a connection corroded or loose, or a switch not making contact, and the light fails. The other possibility is that we have a “short,” or an unintentional ground which is another form of “short,” and the current returns to the battery by the *short route*, and again the light fails.

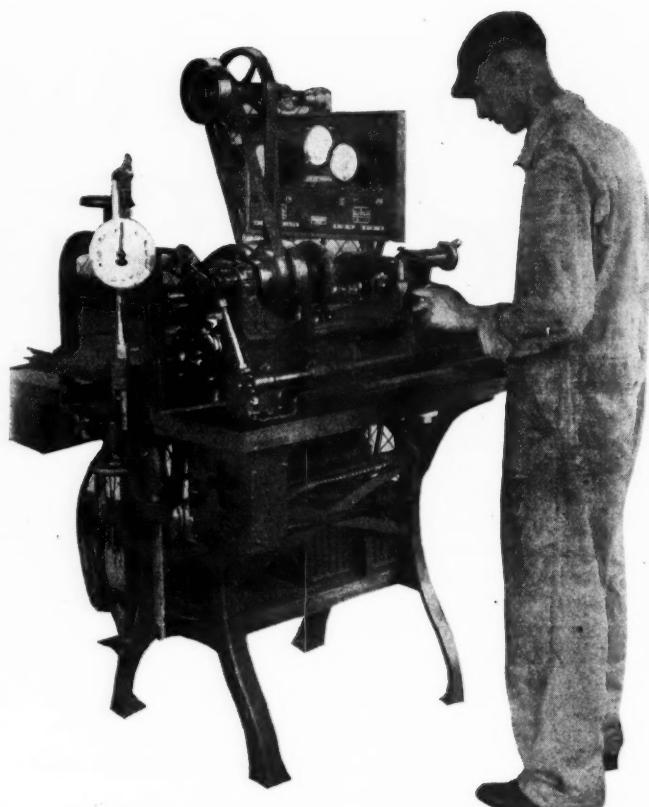
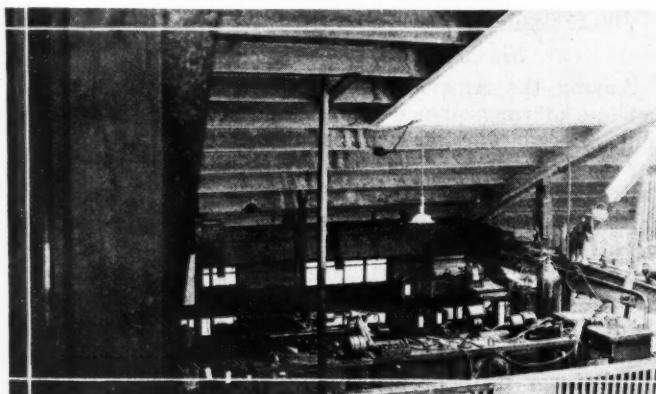
Various forms of “shorts” and “opens,” then, are the only things that happen to the wiring of the car.

Locating the Trouble

If a certain circuit is “dead” or in other words “open,” a voltmeter will quickly locate the trouble. Connecting across the battery terminals a reading of the battery voltage will be obtained. As one side of the battery is attached to the frame and the other side to the wiring of the car a very similar reading should be obtained when the voltmeter is connected between the frame and different parts of the wiring.

Testing between the battery wire where it goes to the

A complete but compact electrical and battery department. “The busiest and most profitable department in my shop,” says the car dealer who owns this.

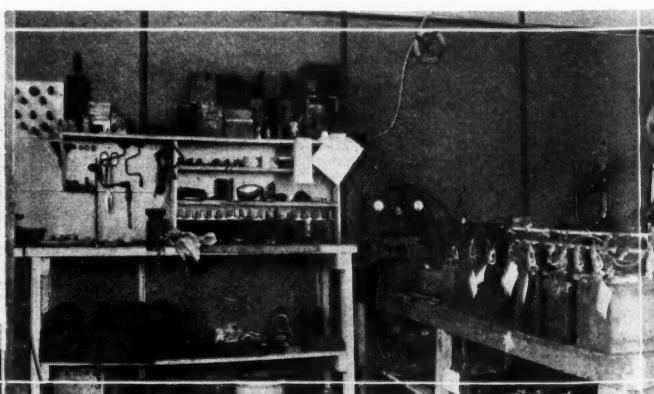


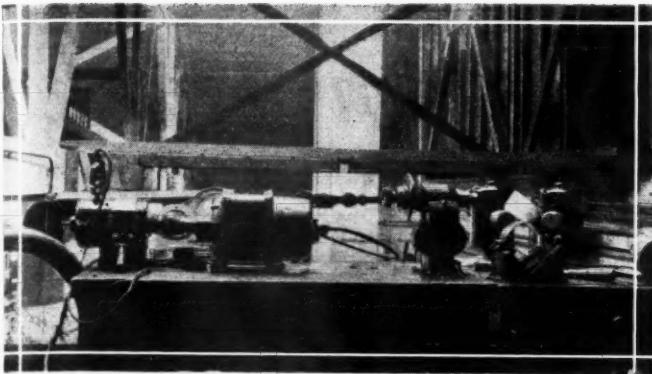
Another type of test bench. The same motor that is used for testing the generators operates the lathe that is a part of this machine.

fuse block and the frame should produce a reading. Failure to do so would indicate that the wire was broken or that the connections of the wire were poor. The same test can be repeated at convenient points along the line and as long as a reading is obtained that is approximately the same as the reading at the battery the circuits are O. K. Let us suppose, however, that the test is made at the switch but on the battery side of the circuit and a reading is obtained. Then trying the same test at the outgoing terminal of the switch that is connected to the “dead” circuit and no reading is obtained one may be certain that *there is trouble in the switch*. It is in this way that trouble can be accurately and definitely located when the simple principles of electricity are understood and the proper testing instruments used.

Where it is suspected that excessive current is being

The battery department of a car dealer in Indiana. The battery charger in this picture has paid its way many times over and has been continually overloaded for the last year, but will have the help of a machine twice its size within the next few weeks.





A special test bench designed to handle Ford generators. A growler for armature testing is a part of the equipment

taken from the battery the ammeter comes in to use. Connecting it in series with the suspected circuit the amount of current passing is read. Similarly, as most car ammeters are not any too accurate, it is well, when setting the charging rate of a generator to place the accurate shop ammeter in series with the battery line. The setting can then be made with precision—the shop and its customer are thus safeguarded against the damage that might result from too high or too low a charging rate and the customer is impressed with the care that is used in performing the work.

Combination of the ammeter and voltmeter together with some special resistance for drawing the desired amount of current are frequently used in testing the battery. A voltage reading taken on a battery that is neither receiving or giving current is meaningless and consequently batteries are generally tested when discharging.

These testing sets are made portable so that the tests can be performed without removing the battery from the car. Regular use of one of these sets is the means used by many shops for increasing the volume of battery repair business as well as increasing the sales of new batteries.

A hydrometer is indispensable in the battery shop for checking up on the electrolyte but it does not give a true picture of the condition on an unknown battery. If acid has been carelessly added the hydrometer may indicate that the battery is O. K. when in reality it may be worthless. The portable battery or cell tester does not give false information—its readings can be readily explained to the customer—and service or a new battery sold on the spot.

Shop Profits

But the ability to locate trouble is of little advantage unless the means are at hand to correct the difficulty.

From socket wrenches and other tools necessary for quickly removing the faulty unit, to repair benches with suitable vises, test points, growler, armature lathe and commutator undercutter, one piece of equipment is as vital as the other in putting speed and accuracy into the job.

Excellent test benches are now available that include the features just mentioned as well as many other attachments that make repairs to *every* part of the electrical system, except the battery, quick and profitable. But the feature of testing every job and *knowing* that it is right before placing it back on the car is probably the greatest advantage, for it is a sure profit and prestige builder.

Battery Repairs

On battery service, too, equipment is needed for satisfactory work. The old days of the screw driver and



Selling service with a portable high rate tester. This little piece of equipment has also sold many new batteries in the last year.

soldering iron for opening batteries are gone forever.

Electric drills now remove the connecting links quickly and without damage. Battery steamers soften the sealing compound and make the covers flexible so that the elements can be withdrawn readily and without the danger of breakage.

Equipment for molding parts, holding plates, cutting separators, welding lead, is working hand-in-hand with efficient charging and testing equipment to place the battery business on the same high plane with the other electrical service. And these two form a surprisingly large share of the profitable service that is performed on the cars of today.

New York Salon Will Be Largest Ever Held

With a record list of exhibitors for the 22nd annual New York Automobile Salon, opening on Nov. 28 at the Commodore, arrangements have been made to display more cars than heretofore. A new doorway has been cut from the main ballroom making available a suite of large reception rooms and in addition there will be an overflow exhibit of a dozen or more cars downstairs in the main lobby.

The forthcoming Automobile Salon, it is said, will be the largest exclusive exhibition of de luxe motor cars ever held anywhere in the world. Well over 100 individual cars will be shown, each mounting a specially designed and built custom body.

Six nations, France, Italy, Belgium, England, Germany and the United States will be represented. Cars being exhibited by their makers or importers are Cunningham, Isotta-Fraschini, Mercedes, Minerva, Panhard, Renault, and Rolls Royce. Cars to be shown by coachmakers are Cadillac, Duesenberg, Franklin, Hispano-Suiza, Imperial Chrysler, Lincoln, Marmon, Packard, Pierce Arrow, and Stutz. Special custom coachwork exhibits will be made by Brewster, Brunn, de Causse, Derham, Dietrich, Fisher, Fleetwood, Holbrook, Hume, Judkins, Le Baron, Locke, Rollston, Weyman and Willoughby.

Of barely secondary interest will be the equally complete showing of the latest developments in body finishes, upholstery, equipment and accessories which are suitable for use on de luxe motor cars. An outstanding feature will be the improvement in chassis engineering as found in the latest models of the world's leading makers of high priced motor cars.

Safety Organization Backs State Traffic

Ernest N. Smith, general manager American Automobile Association, who was a speaker at National Safety Congress



On a Comparative Basis Motor Vehicle Fatalities Are Decreasing, Says Frederick J. Haynes at National Safety Congress

A CONCERTED effort will be made during the coming winter to have the legislature of forty two states adopt the uniform traffic code as recommended by the Street and Highway Conference, Ernest N. Smith, general manager of the American Automobile Association, said during the Fifteenth Annual Safety Congress in Detroit, last week.

Safety exponents will strive to obtain favorable action on the uniform traffic code in the various states, Mr. Smith said. They will be well organized and will have the backing of civic organizations and of a public sentiment which has been quite solidly crystallized on the need of such regulation ever since the findings of the Hoover Conference were made public.

The Congress, which listed more than 300 speakers, talking on all phases of safety work, paid particular attention to the problems in the industries much of which was devoted to the automobile manufacturers who were well represented in the automotive section.

From the feeling which prevailed among the more than 3000 delegates attending the Congress, it was plain to be seen that safety leaders are quite generally agreed upon the need of a uniform traffic law throughout the country, and it is to be expected that members of the various state assemblies will be besieged to act favorably upon such legislation when it comes before them.

Many States Showing Interest

While it is difficult at this early date to forecast the results which will come from this movement, it is safe to believe that many states will fall in line, Mr. Smith so indicated when he said "I believe this winter will see us making more progress on the unification of our motor laws than in the last 25 years."

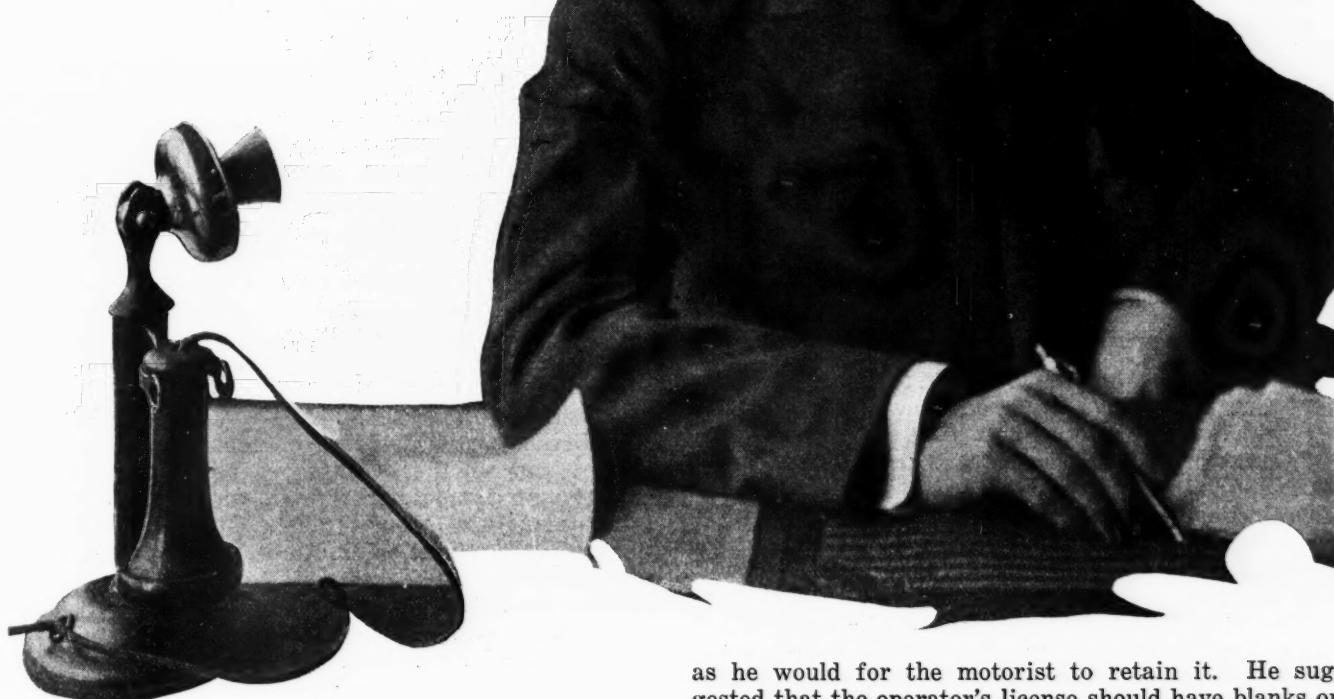
There are now a number of states whose statutes coincide in part with the recommendations of the Hoover Conference, Mr. Smith said, and in such commonwealths an effort will be made to revise the balance of the traffic law to make it uniform with the general plan.

"State safety conferences have already given definite form to the movement for uniformity in some states," he declared. "In other states leaders in political and civic thought have begun to marshall their forces for the big drive and since the conference closed its sessions no less than 23 states have reported activities looking toward the adoption of its recommendations.

"A more progressive idea has never been offered for the control of motor vehicles. No chamber of commerce in the community, the state and the country, can fail to back this movement."

Uniform Code

By LEWIS DIBBLE



Frederick J. Haynes, chairman of Board of Dodge Brothers, who defended the automobile at National Safety Congress

As was to be expected, traffic accidents which have been a big problem in recent years were dealt upon by various speakers who stressed the work that is being done to reduce them. While adoption of a uniform traffic code would no doubt lessen confusion of motorists and thereby tend to cut down accidents, education of millions of people using the highways and more rigid registration laws and severer punishment for wilful offenders of the rules were also suggested.

The average motorist is human and is not an intentional violator of the law. He either disregards the rules through lack of knowledge of laws or through carelessness. To improve this condition, more must be done to see that those using the highways come to have a better understanding of what the laws are and additional educational work must be carried on to make the public realize the urgent need of being more careful.

Several speakers expressed the opinion that there are thousands holding operators' licenses who are actually not fit to drive cars. Some expressed the opinion that applicants for operators' licenses should be compelled to undergo at least an optical, hearing and mental test if not a general physical examination.

Would Charge Accidents Against Drivers

Judge Lee E. Skeel, of Cleveland, presented an interesting idea along this line. He would not make it so difficult for a motorist to obtain an operator's license

as he would for the motorist to retain it. He suggested that the operator's license should have blanks on the back to be filled in by the officials whenever the holder violates the laws. The license would be examined at periods, and, when it was found that the holder had passed a certain point it would be revoked. This, argued the jurist, would make holders of licenses more cautious in the fear of being deprived of the privilege to drive.

The views of one of the leading automobile executives were given to the Congress by Frederick J. Haynes, chairman of the board of Dodge Brothers, Incorporated, who presented an interesting paper.

"Were I asked for a panacea or cure all for the accidents happening every day throughout our land, I should say that courtesy and education would come nearest to accomplishing the result desired," he said.

In Mr. Haynes the industry had an able defender of the motor car as a necessity upon which has been heaped much abuse as the cause of accidents. After citing how many other common necessities have also been responsible for deaths, injuries and illness, he analyzed figures taken from the National Automobile Chamber of Commerce "Facts and Figures" to show that, after all, the traffic accident situation isn't as alarming as some paint it.

"There were 9097 automobile fatalities in 1917," he said, "and the number has mounted year by year until 1925 when they aggregated 19,828, not including col-

(Continued on page 32)

Testing Motor

BILL FIXIT STORY No. 27

PREVIOUS installments in this series by A. H. Packer were published March 19, April 2, April 16, May 7, May 21, June 18, July 30, August 13, September 3, September 24, October 22, December 10, and December 31, 1925; also February 11, March 11, April 1, April 22, May 20, June 10, July 1, July 22, August 12, September 2, September 23 and October 21, 1926.

SYNOPSIS: Bill Fixit's electrical trouble shooting men start on a trip in a Speedway car... They stop at various places along the way and in a mining community are robbed of all their money. This necessitates getting a job with the local electrician, Jake Penders, to whom they give some helpful information gained working in Bill Fixit's electrical department. Directional radio is used by government agents in locating a gang of crooks and the boys' money is recovered. The trip is continued and the night after leaving the mining town they stop with Barney Oldfield Smith, an amateur race driver and help him with a magneto job, where a new condenser is needed. After getting a number of electrical pointers from Bill Fixit's men, Barney decides to open an electrical shop. Bill Fixit's men stay with Barney for a while helping him get his shop started and finally decide it is time to be going home again. On the way back they again stop with Jake Penders and give him some pointers on testing armatures and locating field circuit troubles while farther along the road they stop at Wobble Inn and explain the use of a voltmeter in setting main brushes.

IT took Joe a long time to get to sleep. The test that Bill Fixit's men had shown him kept him awake. It was the first time he had seen the stunt of testing a machine with a voltmeter and especially with battery current used to excite the fields. Then just as he fell off into a doze a party of Hallowe'en merrymakers went by and a shower of beans on the bedroom window made him sit bolt upright in bed. And sleep again vanished.

Even after he dozed off he dreamed of armatures and fields; armatures that howled on ruined bearings and fields that smoked and sizzled, giving off miniature volcano discharges of boiling compound. Taking it all in all Joe spent a bad night, but with the morning the dreams cleared up. From out the nightmare of confused tests there came the recollection of a machine he had thrown under the bench in disgust, a machine that was perfect but would not work, one of those annoying trouble shooting jobs on which you go around in circles, just within reach of the trouble, but never seeming to exactly locate it.

As Joe dressed, the possibilities of the voltmeter test on the separately excited generator increased. "I bet it would locate a floating short," he said half to himself. And when he told the Red Head and Valvy of his troubled dreams and the final revelation that had come to him, they confirmed his conclusion.

"That voltmeter test," said Red, "with battery current through the field circuit can be used for more than setting the main brushes. In fact," he continued, "it is of great value in testing an armature that may have a short circuit that does not show up when the armature is not rotating. Centrifugal force may throw one wire outward so that it rubs on another but does not do so ordinarily. Under these circumstances the ordinary armature test may not locate the difficulty. Testing with the armature rotating as we did last night the voltage should increase in proportion to the speed. (See right hand diagram, page 20, MOTOR AGE of Oct. 21, 1926.)

*Bill Fixit's Men Explain Tests to Use
Before Removing the Machine
and Approve the Voltmeter
Method of Locating Float-
ing Short Circuits
in Armatures*

By A. H. PACKER

"For example, if at 100 r.p.m. we should get 1.5 volts, then at 200 r.p.m., we should get 3 volts and so on. It is not necessary to check the engine revolutions exactly, for if something is wrong it will show up readily enough. As the engine speed is increased a good armature will show a steadily increasing voltage while a bad one will show an increasing voltage for a time and then suddenly the voltmeter needle will drop back, flicker around and act crazy, showing something has suddenly gone wrong.

"There is, of course, a chance of being fooled if the brushes make poor contact, for they may give trouble and break the voltmeter circuit at high speed. Pressure with the fingers however, will insure getting a good brush contact for the voltmeter reading. Without pressing on the brushes one might be fooled by an eccentric commutator or high mica, but aside from these possibilities about the only thing that will make the voltmeter indication erratic is trouble in the armature itself."

After breakfast Joe wanted to know if there were simple tests that could be made on the car to locate the trouble where a motor generator instead of separate generator and starter were used and Valvy assured him that there were.

"That dope's all given in a chart in one of my electrical books," volunteered the Red Head, "but I can make a sketch or two and show you the general idea."

"The type motor generator you refer to," said Red, "is the one with one armature having two windings and two separate commutators (Fig. 1).

"The way it is tested," he continued, "is similar to the method used with a third brush generator, but you

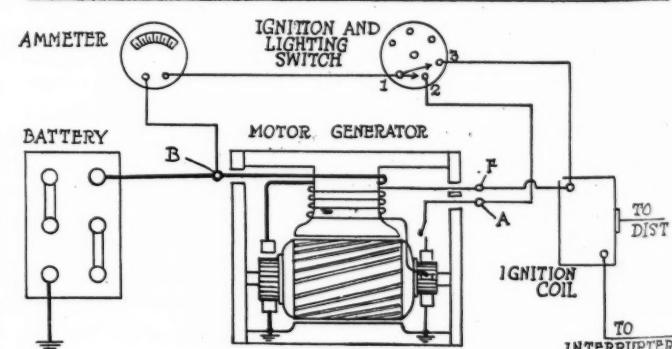


Fig. 1
*Simplified diagram showing general nature of the circuits of
 Dc motor-generator systems*

Generator Systems

have to watch out for the ignition circuit which is hooked in with the generator field. Instead of a cutout we have the ignition switch connecting battery to both generator armature and field. If the starter characteristics are O. K. the best thing to do is to block the ignition points open with a piece of wood or bit of paper so that no primary ignition current can flow.

"Next turn on the ignition switch and see what the ammeter indicates. If the discharge is abnormally heavy and bangs the ammeter needle off the scale it indicates a ground. We have assumed that the starter action is normal and therefore the circuits up to the ignition switch must be good. In this switch it will be seen that a connection is made from the No. 1 terminal to both the No. 2 and No. 3 terminals. A ground could therefore be in the wires that run from these terminals to the generator, or it might be inside the generator. It is a simple matter to disconnect these wires at the terminals marked A and F and see if there is still a heavy discharge. If so, the trouble is in the wiring, and if not, it is in the generator.

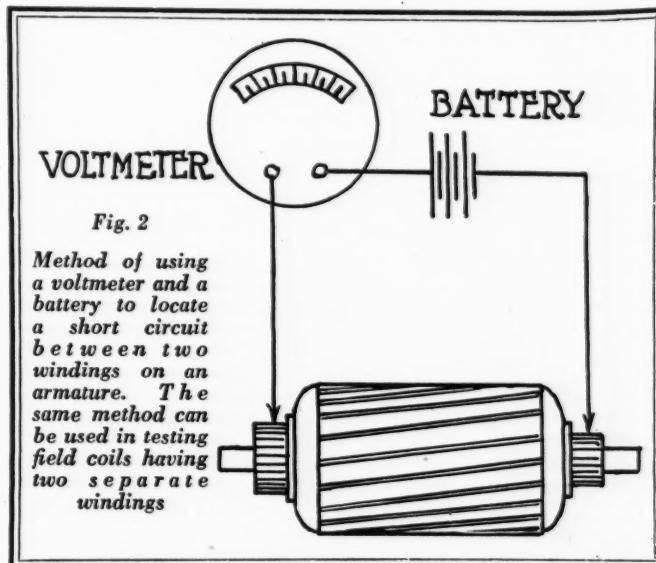
"Now assuming that there is no current flowing, it would mean an open circuit. To check for this we could use the voltmeter, taking readings from the frame of the car to the terminals marked A and F. If both show battery voltage the circuit is good so far, but if either one shows no reading it would indicate a break in the wire or a defect in the switch and the generator could not produce, for either the field or the armature circuit would be open and both are necessary in order to generate current.

"Another way of checking the wires up to the generator is to remove them from their terminals and flash each on the frame of the motor generator or on any metal part of the car. If they fail to flash it indicates an open and if a flash is obtained it shows the trouble is farther along.

"If the ammeter shows a slight discharge, say two or three amperes, it generally shows field current only. This might be due to the generator brush not touching or to the generator switch inside the machine not making contact, for some of these machines used a switch which opened when the starter was functioning while others lifted a generator brush.

"If the ammeter discharge is heavy, say 15 or 20 amperes, but does not send the needle off the scale it shows armature current but no field current and this also is sufficient to prevent the machine operating. After the two wires from the switch to generator have been disconnected and found to flash at the frame of the machine they can then be flashed at their respective terminals. If no flash is obtained it will indicate an open circuit inside the machine. If both terminals give a flash it shows there is some sort of a field and armature circuit and the machine should run as a motor, even if unsteadily.

"Failure to motorize with current



through the ignition switch, when there is both a field and armature circuit would indicate a possible mechanical bind due to the bearings being in such condition that the armature would be dragging on the field pole. Another possibility would be in an old generator clutch which is jammed so that it does not permit free armature rotation.

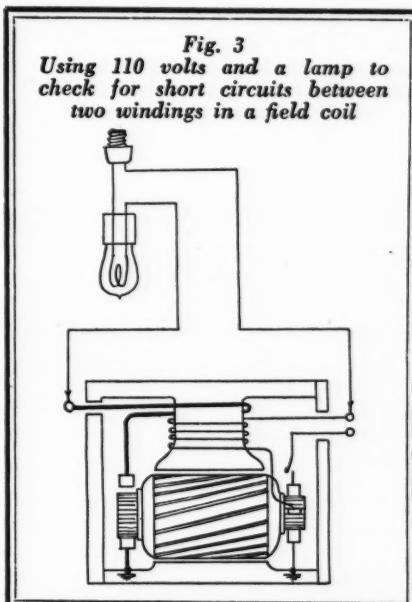
"If the motoring action is weak and unsteady and the ammeter discharge is also heavy and unsteady it is most likely that there is armature trouble."

"That's a lot of testing to do," said Joe, "just to know what's wrong inside the machine when you have to take it off to fix it even after doing all that work."

"It may sound like a lot," said Valvy, "but I've tried it both ways. I used to do the quick and snappy stunt of pull 'er off and fix 'er up, but after I fixed two or three machines that did not need fixin' and after Bill found it out and had to refund part of the job expense on two or three repairs that I had done, I decided I would go a little bit easy and test first. In many cases you may find that the machine is at fault and has to come off, but you also make sure that the trouble is not in the wiring, for it sure makes a fool of you to overhaul a motor generator when the car needs the switch repaired or replaced or perhaps a new terminal put on a wire."

"After you get to the point where you know the machine must come off," the Red Head continued, "then you have to watch out for a couple of things that might not give trouble with a simple generator. One of these is the possibility of the two windings in the armature touching each other or of the two field windings being shorted together, so in addition to testing for grounds we find it well to test for an accidental

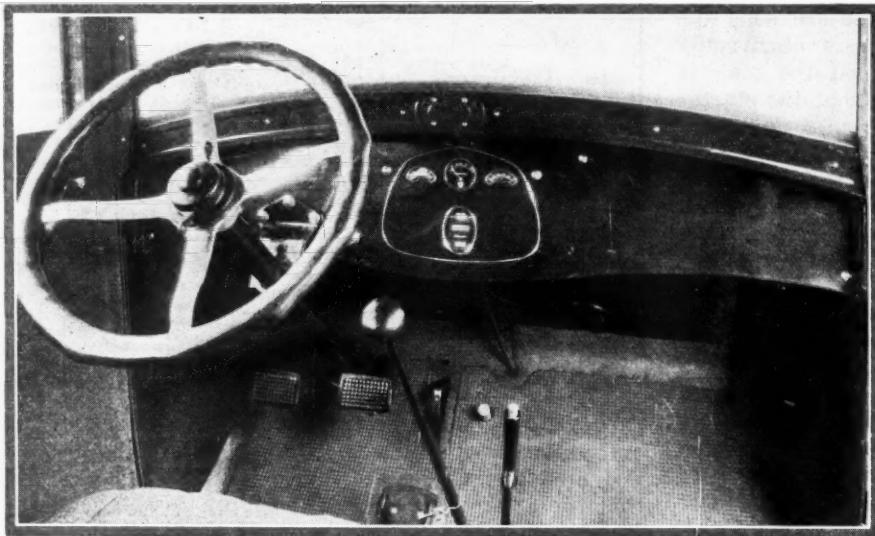
(Continued on page 32)



Velie Presents Six Cylinder

Features of New Model 50 Include Overhead Valve Engine, and Lockheed Hydraulic Four Wheel Brakes on 112 In. Wheelbase Chassis

By A. H. PACKER



The instrument panel is of attractive design. It includes an engine temperature indicator as well as the more conventional instruments

PERFORMANCE, comfort and striking appearance have been built into the new Velie model 50, a six cylinder four door sedan selling at \$1045. Using a 3 1/2 in. by 4 1/4 in. overhead valve type engine, this 112 in. wheelbase car negotiates steep hills like a veteran. Starting in high at 5 m.p.h. it steadily increased speed up a 9 per cent grade with four in the car and went over the top at 13 m.p.h. On a still steeper hill the car with two passengers was started in high gear at a point about 30 feet from the start of the incline, the speed gradually increasing until the top was passed at 12 m.p.h.

The engine develops 46 h.p. at 2600 r.p.m., the rated h.p. being 23.4 and the piston displacement 196 cu. in. This power plant in addition to giving high torque for accelerating and hill climbing makes possible a comfortable cruising speed between 40 and 50 m.p.h., and a peak speed of approximately 60 m.p.h. Lubrication is full pressure to all bearings except the piston pins which are splash lubricated. Extreme quietness and long wear of the valve operating mechanism is assured by extending the pressure lubrication system to the rocker arms.

Rocker Arm Lubricated

Oil is carried up from the lower part of the crankcase to the hollow rocker arm shaft and from this reservoir streams of oil the size of the lead in a pencil shoot continuously on the ball

and socket bearings at the tops of the push rods.

A novel piston construction is used in this engine as far as the rings are concerned. Piston material is cast iron and three 1/8 in. rings above the pin are employed, the lowest of these three being a Perfect Circle oil control ring which functions with the aid of holes drilled at the back of the ring groove. In addition to these three rings above the pin, there is a fourth ring 1/8 in. wide at the lower part of the skirt. This ring is used to reduce tendency for side slap at the piston skirt and also to equalize cylinder wall wear. Holes in the piston are also drilled

back of this ring. To secure smooth high speed operation a vibration damper is employed.

Another feature of the engine construction is the mounting of the oil pump somewhat above the lowest portion of the crankcase, but directly over it. This construction is employed so that water of condensation which tends to form in all engines is not readily drawn up into the pump, as it settles below the oil. Occasional draining, by removing the plug below the pump, then suffices to keep the water from being circulated or from rising to the point where it might affect the pump operation, due to freezing.

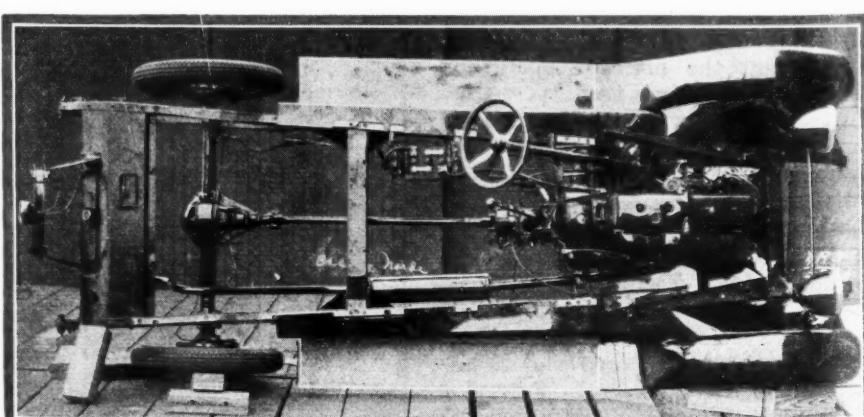
In the fuel intake system a novel construction is used, the air intake pipe being incorporated with the valve cover, a small opening in this pipe drawing oil and crankcase vapors from the valve compartment and feeding them into the carburetor. This not only gives lubrication to the pistons and cylinder walls but also draws off undesirable crankcase vapors due to the fact that the valve compartment connects directly with the lower part of the crankcase.

The body of the new car as well as the engine, axles and many other parts are made in the Velie factory. The 112 in. wheelbase chassis used provides for ample leg room in both front and rear seats.

Composite Body Construction

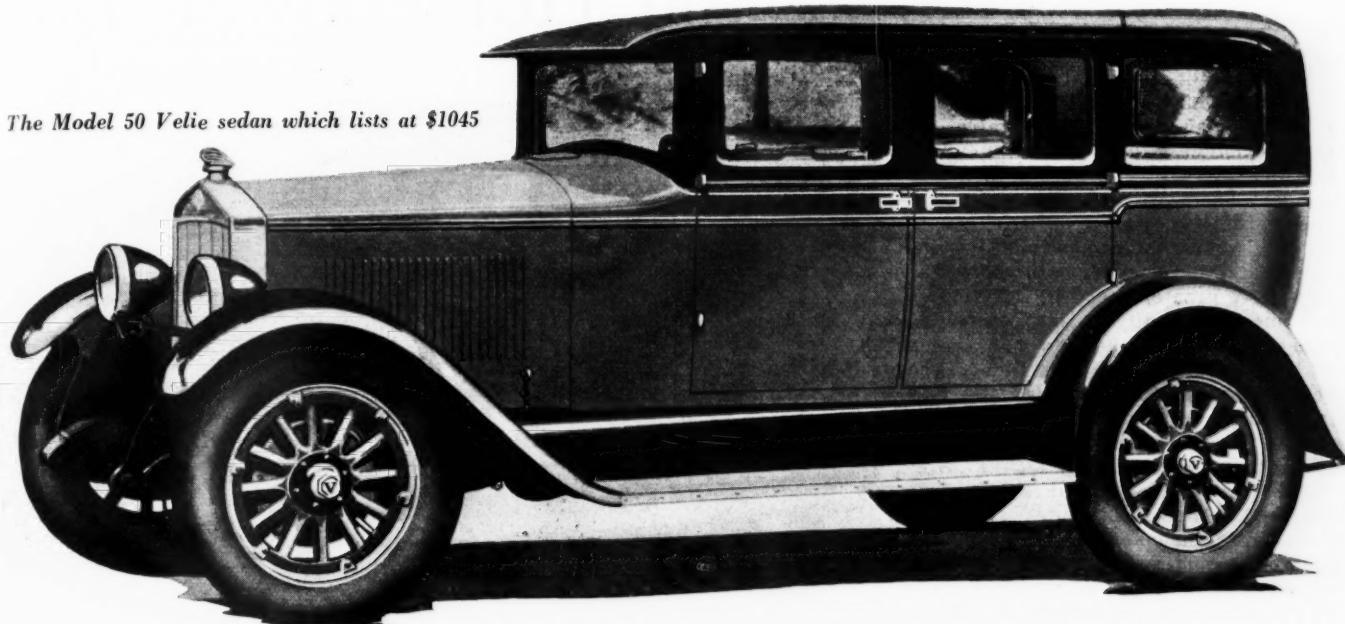
Composite construction, utilizing the best properties of wood and steel, is used, the windows being of generous extent providing clear vision at the rear as well as in front and at the sides.

The Model 50 chassis. Four wheel hydraulic brakes are regular equipment. The emergency brake is on the propeller shaft



Four Door Sedan at \$1045

The Model 50 Velie sedan which lists at \$1045



of the car. All side windows open, including the quarter windows at the sides of the rear seat, in each case an easily operated Dura regulator of the spring compensated type being employed. A similar regulator operates the windshield which lifts vertically.

The visor is of the built in type, being in effect an extension of the roof and is covered with roof material. Other external features which catch the eye are the radiator design with its vertical bar effect built into the core, the body and hood lines with kick up in the bead just at the rear of the rear door, and the door handles equipped with American Swiss Magneto type locks with inside control.

The finish is Duco; the lower part of body and hood below upper molding including crest panel and top of hood is Pigeon Gray while the part of the body above the upper molding is Buckingham Gray. Striping is cream and molding Raven black. The interior is finished in fine fabric in a colortone to

harmonize with the Pigeon and Buckingham grays used on the exterior of the body.

The instrument panel is of wood, metal covered and finished in natural walnut. It contains the speedometer, oil gage, ammeter and engine temperature indicator and is illuminated with a shielded light. Other features of the body include a cowl ventilator, recessed type pockets in rear doors and pockets on both sides of cowl panels, curtain on rear window to match upholstery, dome light, automatic windshield wiper, rear vision mirror and robe rail. Four scuff plates are also included, one at each door.

Among the features of the engine are the use of Textolite gear on the cam-shaft and the pressure lubrication of valve mechanism previously mentioned. The crankshaft, which is statically and dynamically balanced, is carried on four bearings $2\frac{1}{8}$ in. in diameter. The front bearing is $2\frac{1}{4}$ in. long, the center

bearings $1\frac{1}{2}$ in. and the rear bearing $2\frac{5}{8}$ in. The crankpin bearing size is 2 in. by $1\frac{5}{8}$ in.

Cylinders are cast en bloc in a unit with the upper part of crankcase. Valves have a lift of $\frac{5}{16}$ in. and a diameter of $1\frac{1}{8}$ in. Valve port diameters are $1\frac{1}{16}$ in. A Stromberg Model OH-1 horizontal 1 in. carburetor is used, together with a Stewart vacuum tank drawing fuel from a 17 gallon tank at the rear of the car.

Warner transmission, Borg and Beck clutch and Ross cam and lever type steering gear are other chassis units embodied in the model 50. The transmission ratios are 3.07 to 1 in low, 1.77 to 1 in second and 1 to 1 in high gear. In reverse the ratio is 4 to 1. The transmission holds one quart of oil.

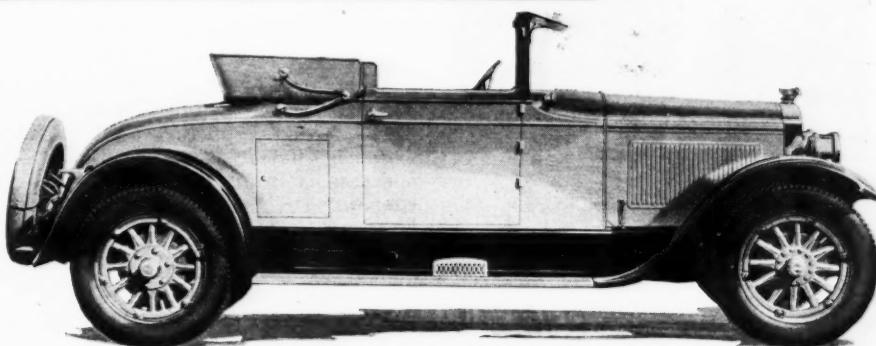
Electrical units, including ignition, starter and generator are Autolite, while the battery is a Prest-O-Lite of 90 ampere hour capacity.

New Buick Coupe

THE extensive line of Buick cars is augmented by the introduction of an open coupe on the series 128 chassis. It will be known as the model 54CC and lists at \$1925.

Affording the advantages of a coupe, the model can also be transformed into an open car by folding the top into a small pack. The natural fabric top hangs low over a body of duotone Winchester blue Duco giving the car a smart appearance. The moulding is Winchester grey. A Patrol red stripe in the center of the moulding is edged on both sides with a narrow gold Duco strip. Wheels are dark natural wood with Patrol red striping on the felloes and spokes.

A low swung dickey is carried in the



Buick convertible coupe Model 128-54CC listing at \$1925

rear deck similar to other Buick coupe and roadster models. Aluminum steps with rubber pads provide an easy means of entrance to the dickey seat. Windshield is one piece and swings out.

A ventilator is in the cowl. Upholstery is of hand buffed leather. Nickel trim is generously used throughout. Windows can be raised or lowered with the top up or down.

White Has Six Cylinder 100 Horsepower Bus

THE White Company of Cleveland has brought out a six cylinder bus powered with an overhead valve engine developing 100 horsepower. This new model is in addition to the four cylinder buses which will still be produced. It is designed to take advantage of better highways and provide power and speed under safe control so as to give greater speed in the country and more flexibility in city operation. Other features of the new bus, which is known as model 54, include seven bearing crankshaft, four wheel metal to metal brakes, nine inch balloon tires, double drop frame and two-stage springs.

The four wheel brakes are air operated, which contributes safety to the high speed operation. The vehicle is said to handle as easily as a touring car in spite of the power available and to run smoothly and without vibration. The two stage springs also contribute to smooth action and easy riding.

The White six is built as a single deck bus only. It has a wheelbase of 227 in. and carries from 18 to 23 passengers in a pay-enter model with baggage compartment for interurban service, and from 25 to 29 passengers in a pay-enter model, without baggage compartment, for city service.

An Aid to Feeding Motor Tourists

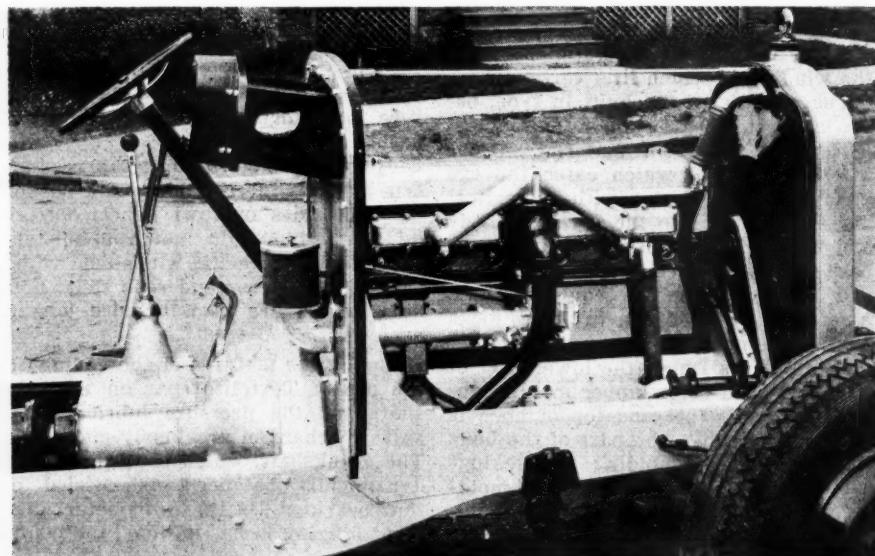


The Boysen automobile serving table in place

A DEVICE to help feed the motor tourist has been perfected by August Boysen, 703 South Clinton street, Chicago. This is a portable table that can be set up on the door of the car with a leg reaching to the running board for support. When in place it provides a table similar to that found on the one-arm chairs of certain popu-



The White six cylinder bus known as model 54. Its engine develops 100 horsepower



Front of chassis showing the new overhead valve, six cylinder engine

lar restaurants. With this device tourists may eat in comfort in their cars.

The inventor of this serving table, which is sold at \$2.95, or \$34 a dozen, operates a tourists' eating place in Houston, Tex., making regular use of it.

Improvements in Graham Model 502 Bus

A number of improvements on the Graham Brothers model 502, 21 passenger street car type bus have recently been made. The new Dodge Brothers engine which embodies a 5 bearing crankshaft and separate starting and lighting units is now supplied on this chassis. The former engine had

a 3 bearing crankshaft and a single unit electric system. The chassis frame members have been redesigned, having been increased from 6 in. to 7 1/8 in. in depth, while the thickness of the stock has been decreased from 1/8 in. to 1/4 in. A Ross cam and lever steering gear is now used on this model. On the former model a worm and wheel steering gear manufactured by Graham Brothers was used.

Changes have also been made in the emergency and service brakes, in order to economize wear on the brake bands. Although the wheelbase has been increased only 4 in., now being 162 in., a reduction in body overhang of 10 in. has been effected.

Some New Products at A. E. A. Show

NEW GENERAL EQUIPMENT PRODUCTS

The General Equipment Corp., Kalamazoo, Mich., announces an extensive line of new automotive service equipment. New items include: Ford test stand, Chevrolet test stand, universal test stand, battery lifting handle, automatic spark chuck for Studebaker, rear axle nut wrench for Studebaker bus, Chevrolet running-in machine, unloading truck for Ford cars, wheel aligning jig, flywheel housing facing fixture, steering wheel and nut wrench and an extensive line of gear pullers and pushers.

The unloading truck for Fords, known as J-2A, is constructed of heavy gage channel steel and steel castings and is equipped with ball bearing casters. It is used in conjunction with a specially designed creeper and three chain hoists. Cars placed diagonally against the sides of box cars, cars supported against the roof of box cars and cars resting on the floor of box cars are conveniently handled and wheeled from the freight car with this truck. The truck weighs 150 lbs. and the price is \$45. The special creeper, known as J-2B, weighs 40 lbs. and the price is \$12.

The general battery lifting handle is used for removing, installing or carrying automobile batteries with or without handles, and old batteries with acid soaked cases, or assembled elements out of case. Price 75 cents.

Herewith are brief descriptions of some of the new products on display at the Automotive Equipment association show, about which information was not received in time to be included in last week's issue of MOTOR AGE. This week MOTOR AGE technical editors are canvassing the show to obtain descriptions of any other new devices that may be shown, in addition to those described this week and last week. Additional descriptions will be published next week.

EVEREADY FOCUSING FLASHLIGHT

The new Eveready focusing flashlight made by the National Carbon Co., Inc., New York, N. Y., is designed particularly for the use of fishermen, hunters, firemen and motorists. It utilizes five Eveready No. 950 unit battery cells. Price \$5.25.

NEW GILFILLAN PRODUCTS

New products of the Gilfillan Brothers, Inc., Los Angeles, Cal., are: Complete line of bronze and steel ignition distributor gears; new ignition replacement parts for latest model cars; motor and generator brushes to fit 1926-27 models; pocket wrench kit containing generator third brush and right angle socket wrenches.

CURTIS ROTATING AUTOMOBILE LIFT

A new Curtis rotating automobile lift is announced by the Curtis Pneumatic Machinery Co., St. Louis, Mo. The platform of this lift is flush on the underside and rests very close to the surface. In the lowest position or any other position the platform can be rotated. No large pit is required for installation, the lifting cylinder resting in a pit only 34 in. in diameter. The lifting height is 5 ft., giving plenty of head room underneath. The lift is operated by air furnished from the regular tire service compressor if it is provided with an oversize tank or an auxiliary tank. The pressure required to lift the heaviest car is 100 lbs. The lift goes up rapidly and comes down slowly. The list price of this outfit is \$1187.50.

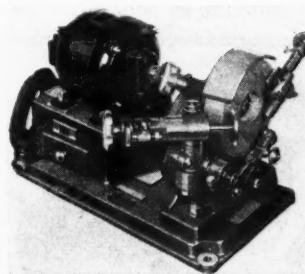
NEW STEVENS-WALDEN-WORCESTER PRODUCTS

A number of new service tools are offered by Stevens-Walden-Worcester, Inc., New York, N. Y.

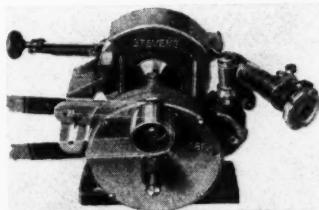
The Stevens hand driven valve face grinder T-281, is now provided with a pulley which can be attached to a motor or belt drive. This machine also has a new base arranged for solid bolting to bench, though an attachment is also offered for clamping to bench. Price \$29.

The Stevens motor driven valve face grinder T-282 is now built so that the grinding unit may be removed and converted into a hand driven model for portable use. This machine also has a

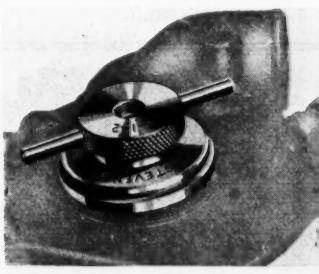
(Continued on page 23)



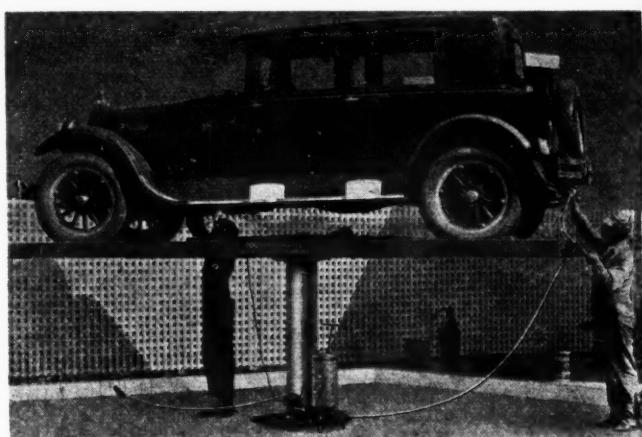
Stevens Motor Driven Valve Face Grinder T-282



Stevens Valve Face Grinder T-281

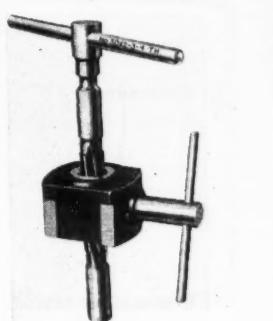


Stevens Camshaft Commutator Aligner for Ford

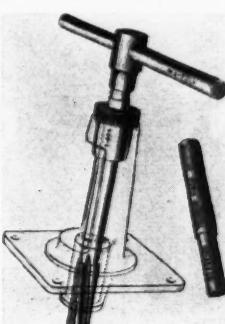


Curtis Rotating Automobile Lift

Stevens Fixture and Reamer Combination for Ford Cam-shaft Bearings



Stevens Camshaft Commutator Aligner for Ford



News Items About the N. S. P. A. Show

NEW BURD PISTON RINGS

The Burd High Compression Ring Co., Rockford, Ill., offers its new line of piston rings including Burd plain turn ring, price 25 cents; Burd oil ring, price 40 cents; Burd quick seating ring, price 40 cents, and Burd oil guard, price 60 cents.

ORANGE BEARING

New Orange taper roller bearing is offered by the Orange Bearing Sales Co., Orange, N. J. In the Orange bearings rollers are held in place by an accurately fitting cage of bronze. These bearings are assembled in three distinct units and are interchangeable with other bearings.

LINK BELT EXHIBIT

The exhibit of the Link Belt Co., Chicago, at the N. S. P. A. show will include the Link Belt Automatic adjustment for timing chains. It will also include replacement parts for the complete front end drive. Harry Reiser, manager of the Replacement Parts Division of the company is expected to be present at the exhibit after a severe illness which has incapacitated him for many weeks.

PERMITE PISTONS

Pistons of new design and made of aluminum alloy are offered by the Permite Piston Co., Cincinnati, O. These pistons are light in weight and are said to be easily fitted to the cylinders. They are cast in permanent steel molds by the manufacturer. These pistons are sold either finished or semi-finished. When sold semi-finished complete instructions for finishing and fitting are included with each set. They are made in 13 oversizes. Prices range from \$2.25 to \$6 each.

The second annual exposition of the National Standard Parts Association will open at Hotel Sherman in Chicago, Monday, Nov. 15, and continue through Nov. 19. About 150 manufacturers of motor vehicle parts will exhibit their products, and at the same time a convention of the manufacturers and jobbers comprising the association will be held. Herewith is an advance review of some of the new products that will be displayed. Others will be reviewed in later issues.

AMERICAN HAMMERED EXHIBIT

The exhibit of the American Hammered Piston Ring Co., Baltimore, Md., at the N. S. P. A. Show will include demonstrations of three of the most important operations involved in the manufacture of American Hammered Piston rings. These operations are the milling, hammering and finished turn. This company will show its new Oilslot ring which was described in the Nov. 4 issue of MOTOR AGE.

CLEVELAND LAPPED PISTON PINS

A new line of "Cleveland Quality" lapped piston pins is offered by the Cleveland Piston & Mfg. Co., Cleveland, O. Prices will be competitive with ground piston pins.

WHITNEY ROLLING JOINT CHAIN

The Whitney Rolling Joint type silent chain has been introduced by the Whitney Mfg. Co., Hartford, Conn. This chain may be used on same sprocket as the Whitney silent type chain with double bearing pin and bushing joint. The new chain has hardened pins having co-operating convex and concave surfaces in contact throughout a substantial portion of their area below the center line of the chain when the chain is under load between sprockets.

SECURITY LAPPED PISTON PINS

Security lapped piston pins are now being supplied for all makes of cars by the Security Mfg. Co., Los Angeles, Cal. The lapping process by which these pins are finished provides a smooth mirror like bearing surface for very accurate fitting.

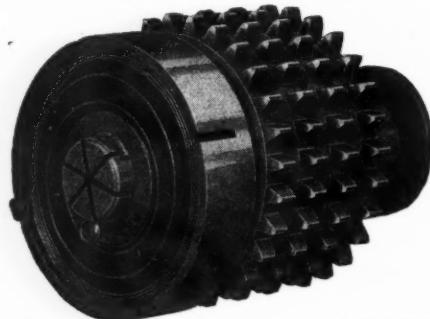
ACCURALLOY PISTONS

A new line of pistons made of aluminum alloy is being offered by the Accuralite Co., Muskegon, Mich., under the trade name of Accuralloy. These pistons are machined to precision tolerances and are drilled for oil regulating rings. Prices range from \$2.50 to \$5.25 each on numbers so far in production.

NEW WARNER GEAR PRODUCTS

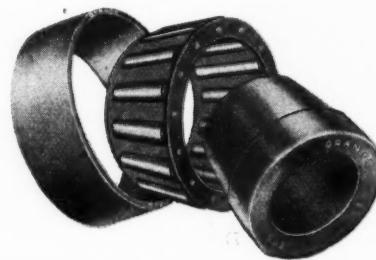
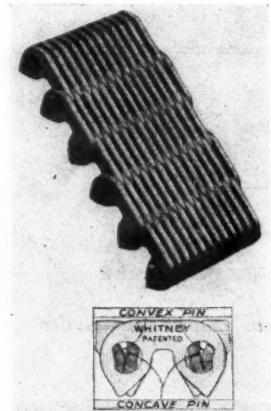
New products offered by the Warner Gear Co., Muncie, Ind., are a clutch disk and shaft assembly for Star, price \$7.50; clutch disk and hub assembly for Oakland, price \$3; and clutch disks and facing for Chrysler 6-70.

(Continued on page 23)

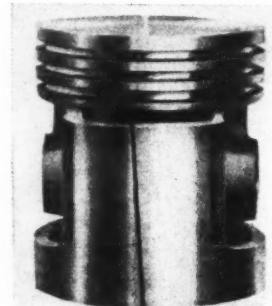


Link-Belt Automatic Adjustment

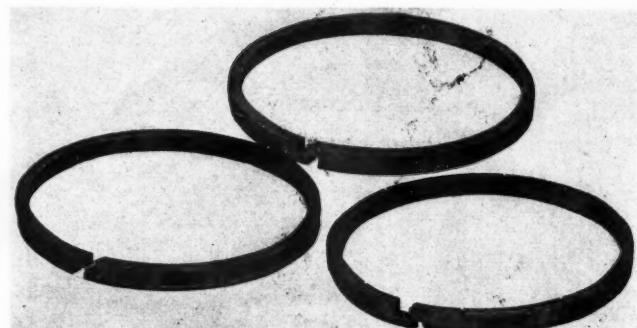
Whitney Rolling Joint Type Silent Chain



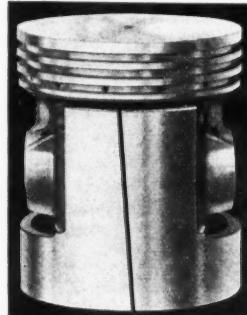
Orange Taper Roller Bearing



Permite Piston



New Burd piston rings. At left below is the quick seating automatic ring and at right is the oil ring. Above is the plain turned ring.



Accuralloy Piston

New Things at the Shows

STEVENS-WALDEN-WORCESTER

(Continued from page 21)

new low base to which the grinder unit is bolted. A new handy tool drawer also is included. Price \$70.

Another new Stevens tool is the puller T-609 for Ford generator bearings and Bendix drive. Price \$3. The Stevens Reamer and fixture T-604 for Ford rear starter bushing No. 5105 is also a new tool. Price \$2.50. The new fixture and reamer combination T-143-A is for fitting Ford camshaft bearings. Price \$4.50. Stevens camshaft commutator aligner T-142 is for centering the Ford front cylinder block cover No. 3009 to the camshaft in order to provide accurate ignition. Price \$2. Stevens camshaft puller T-140 is for the Ford camshaft and pulls the shaft with or without timing gear attached. Price \$3.

McCORD HAS NEW SELLING PLAN

McCord radiators for Fords, made by McCord Radiator & Mfg. Co., Detroit, Mich., are now being sold without the shell. Under a new selling plan these radiators are shipped direct from the factory and billed through the jobber, except where especially requested from the jobbers' stock. Formerly these radiators were sold only with the shell included, but it was found that in many cases a new shell was not desired. This led to the plan of marketing the McCord radiator cores for Fords without the shells. The tubular type for Fords without the shell sells for \$12 and the cellular type for \$12 and \$12.25.

The McCord company is also offering the trade a new display board containing an assortment of the kinds of gaskets every car owner needs but seldom calls for. These are the smaller gaskets for the various fittings on the car. The board is number 7026 and contains 100 2-in-1 gaskets for Ford and Essex six, and 10, 3-hole 2-in-1 gaskets for Ford.

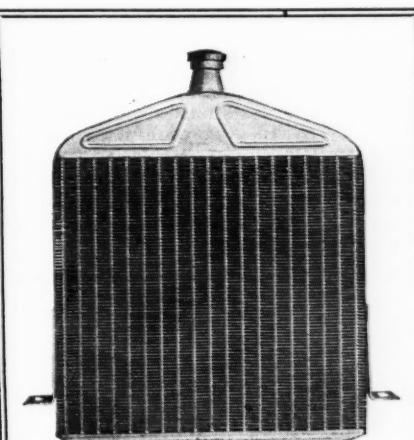
NEW FRAIM-SLAYMAKER PRODUCTS

The Fraim-Slaymaker Hardware Co., Inc., Lancaster, Pa., offers a new disk wheel padlock known as 189B bumper. This is a Parkerized lock with solid iron case and steel rod shackle. Heavy red "Bumper Bands" are attached to grooves in the case to prevent scratching the finish of the disk wheel. Price \$6 a doz.

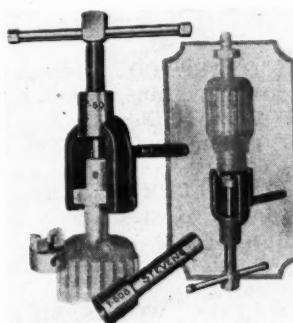
This company also offers a new padlock assortment No. 1070 containing 12 locks on a display board. Price \$10.70. Another new product of this company is an assortment of 12 lock chains for spare tires. This assortment also comes on a display board. Price \$14.50.

PETRY KILGLARE

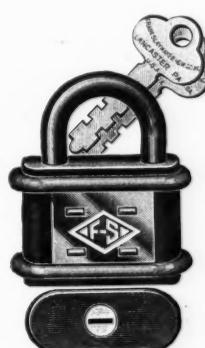
A new attachment for rear view mirrors to prevent glare from reflected lights at night is announced by N. A. Petry Co., Inc., Philadelphia, Pa. This attachment is made of a special shade of optical green glass, which gives protection against glare. It is attached to any regular rear view mirror in such a way that when not needed it may be easily turned up, leaving the mirror free. Price 75 cents.



McCord Tubular Radiator for Ford



Stevens Puller for Ford Generator Bearings and Bendix Drive



Fraim-Slaymaker Disk Wheel Padlock No. 189B



Petry Kilglare Mirror Attachment

AT THE N. S. P. A. SHOW

(Continued from page 22)

THOMPSON VALVES

One of the exhibits of Thompson Products, Inc., Cleveland, O., at the N. S. P. A. Show will be a starting crank display rack which has a capacity of 250 starting cranks. This rack has been designed for the use of jobbers who stock these cranks. Another exhibit will be a valve display board showing progressive stages in the manufacture of a one piece solid forged Thompson valve. The Thompson hollow stem airplane valve which was described in the Nov. 4 issue of MOTOR AGE will be shown.

NACO CORK GASKET DISPLAYS

National Products, Inc., Newark, N. J., offers three new display assortments of gaskets. Display No. S-02 for Fords contains a variety of gaskets with a retail value of \$20. No. S-04 for Dodge contains an assortment of gaskets with a retail value of \$21.50. No. S-03 contains a varied stock of oil pan and crankcase gaskets with a retail value of \$155.

NATIONAL SHIMS

A new service cabinet containing an assortment of National shims with a retail value of \$108 is offered by National Motor Bearing Co., Inc., San Francisco.

NEW VAN NORMAN TOOLS

New products of the Van Norman Machine Tool Co., Springfield, Mass., are the No. 2 Reamo reaming machine, price \$125, and the Kor-ek-tor skirt correcting machine, price \$45.

CARROCORK GASKETS

Felt Products Mfg. Co., Chicago, Ill., is offering new Carrocork gaskets and a number of new assortments of gaskets and washers.

EVEN-KEEL REBOUND CHECK

The Accurate Gear Co., Springfield, O., is offering the Even-Keel rebound check and body control for Ford cars. Price \$7.35.

NEW JOHNSON BUSHINGS

The complete line of new bronze bushing for the latest models of cars and trucks will be shown by the Johnson Bronze Co., New Castle, Pa.

LYNITE PISTONS

A complete line of Lynite pistons is being offered by the Ohio Piston Co., Cleveland, Ohio.

Change Name

MILWAUKEE, Nov. 6.—The Wisconsin Auto Spring Co., Milwaukee, has changed its corporate title to Wisconsin Spring & Truck Corp., to indicate an extension of the scope of the business. The concern makes a specialty of replacement springs for motor vehicles of all kinds. Watt E. Babler is secretary.

Exhibitors at N. S. P. A. Show

HEINN COMPANY, Milwaukee, Wis.
Binders. Booth No. 2.

JOHNSON BRONZE CO., New Castle,
Pa. Bushings. Booth No. 3.

HUSKY WRENCH COMPANY, Milwaukee,
Wis. Wrenches and hammers.
Booth No. 5.

WISCONSIN MACHINERY & MFG.
CO., Milwaukee, Wis. Pistons. Booth
No. 6.

HIDE LEATHER BELTING CO., In-
dianapolis, Ind. Leather, rubber and
fabric products. Booth Nos. 7-8.

PACKER AUTO SPECIALTY CO.,
Chicago, Ill. Wrenches and socket
tools. Booth No. 11.

J. A. DRAKE & SONS, Reedley, Cal.
Valves. Booth No. 12.

BRANDT-WARNER MFG. CO., York,
Pa. Axles and pinion shafts. Booth
No. 13.

INDIANAPOLIS TOOL & MFG. CO.,
Indianapolis, Ind. Ring and pinion
gears. Booth No. 14.

OHIO PISTON CO., Cleveland, O.
Pistons. Booth No. 16.

ACCURATE GEAR CO., Springfield,
O. Starter gears. Booth No. 17.

S K F INDUSTRIES, INC., New York,
N. Y. Ball bearings. Booth No. 18.

BURD HIGH COMPRESSION RING
CO., Rockford, Ill. Piston rings. Booth
No. 19.

CHILTON CLASS JOURNAL CO.,
Philadelphia, Pa. Trade publications.
Booth Nos. 20-21.

U. S. AXLE CO., Pottstown, Pa.
Axe shafts and brake drums. Booth
No. 22.

TWENTIETH CENTURY BRASS
WORKS, Minneapolis, Minn. Bushings.
Booth No. 23.

LINK BELT CO., Indianapolis, Ind.
Timing gear chains. Booth No. 24.

DELUXE PRODUCTS CORP., La-
Poite, Ind. Pistons. Booth No. 25.

AETNA BALL BEARING CO., Chi-
cago, Ill. Ball bearings. Booth No. 26.

WARNER GEAR CO., Muncie, Ind.
Ring and pinion gears. Booth No. 27.

MILWAUKEE DIE CASTINGS CO.,
Milwaukee, Wis. Bearings and bushings.
Booth No. 28.

SECURITY MFG. CO., Los Angeles,
Cal. Piston pins, valves, chassis bolts,
bushings. Booth No. 29.

U. S. BEARINGS, INC., Indianapolis,
Ind. Connecting rod and crank shaft
bearings. Booth No. 30.

WESTERN GEAR CO., Detroit, Mich.
Ring and piston gears. Booth No. 31.

DETROIT PISTON RING CO., De-
troit, Mich. Piston rings. Booth No. 35.

LAMINATED SHIM CO., Long Island,
N. Y. Shims and shutters. Booth No. 36.

LAKE ERIE METAL PRODUCTS CO.,
Bedford, O. Axe shafts and worm
gears. Booth Nos. 38-39.

OCHROME VALVE CO., Baltimore,
Md. Poppet valves. Booth No. 40.

DETROIT STEEL PRODUCTS CO.,
Detroit, Mich. Shock absorbers and
springs. Booth 41-88.

PERFECTION GEAR CO., Chicago,

Herewith is a list of the exhibitors at the National Standard Parts Association show which will be held at Hotel Sherman, Chicago, Nov. 15 to 19, together with the products they will display. This list is complete up to the time of going to press, but space was being reserved for several whose applications were pending.

Ill. Gears, chains, tappet silencers.
Booth 42-43.

HASTINGS MFG. CO., Hastings, Mich.
Piston rings. Booth No. 44.

VAN NORMAN MACHINE TOOL CO.,
Springfield, Mass. Shop equipment.
Booth No. 46.

FOSTORIA PRESSED STEEL CO.,
Fostoria, O. Fenders. Booth No. 47.

PISTON RING CO., Muskegon, Mich.
Piston rings. Booth Nos. 48-49.

MARLIN-ROCKWELL CORP., James-
town, N. Y. Ball bearings. Booth
No. 50.

TIMING GEARS CO., Chicago, Ill.
Timing gears and chains. Booth No. 51.

W. D. FOREMAN, Chicago, Ill. Axle
drive and pinion shafts, piston pins.
Booth Nos. 52-53.

POWELL MUFFLER CO., Utica, N. Y.
Mufflers. Booth No. 54.

MULTIBESTOS CO., Walpole, Mass.
Brake and clutch lining and equipment.
Booth Nos. 55-56.

ELGIN MACHINE WORKS, Elgin, Ill.
Piston pins. Booth No. 57.

SWARTZ MFG. CO., Freeport, Ill.
Pistons. Booth No. 58.

RUSSELL MFG. CO., Middletown,
Conn. Brake lining and clutch facings.
Booth No. 59.

FELT PRODUCTS MFG. CO., Chi-
cago, Ill. Cork gaskets and felt wash-
ers. Booth Nos. 60-61.

DALTON & BALCH, INC., Chicago,
Ill. Timing gears and chains. Booth
Nos. 62-63.

ROTTLER BORING BAR CO., Seattle,
Wash. Shop equipment. Booth No. 64.

TRINDL CO., Chicago, Ill. Piston
pins, valves, bolts and set screws.
Booth No. 65.

REPUBLIC GEAR CO., Detroit, Mich.
Gears. Booth Nos. 66-67.

KING MFG. CO., Buffalo, N. Y. Piston
pins, set screws, axle bolts and bush-
ings. Booth No. 68-69.

G & H MFG. CO., Baltimore, Md.
Valves, rings and assorted springs.
Booth No. 70.

GILL MFG. CO., Chicago, Ill. Rings,
pins and pistons. Booth No. 71.

FOSTORIA SCREW CO., Fostoria, O.
Bolts and bushings. Booth No. 72.

CLEVELAND PISTON & MFG. CO.,
Cleveland, O. Pistons, piston pins,
inner rings. Booth No. 73.

KEASBEY & MATTISON, Ambler,
Pa. Brake lining and clutch facings.
Booth No. 74.

AMERICAN HAMMERED PISTON
RING, Baltimore, Md. Piston rings.
Booth Nos. 75-76-77.

NATIONAL MOTOR BEARINGS CO.,
San Francisco, Cal. Shims and wash-
ers. Booth No. 78.

FEDERAL-MOGUL CORP., Detroit,
Mich. Bearings, bushings, rod bolts and
nuts, anchor screws. Booth Nos. 79-80.

JAMES MOTOR VALVE CO., Detroit,
Mich. Valves. Booth Nos. 81-82.

ORANGE BEARINGS CO., Orange,
N. J. Bearings. Booth No. 83.

BONNEY FORGE CO., Allentown, Pa.
Wrenches and tools. Booth Nos. 84-85.

FAFNIR BEARING CO., New Britain,
Conn. Ball bearings. Booth No. 86.

HOLFAST RUBBER CO., Atlanta, Ga.
Automotive rubber goods. Booth No. 87.

DETROIT STEEL PRODUCTS CO.,
Detroit, Mich. Springs. Booth Nos.
88-41.

WHITNEY MFG. CO., Hartford, Conn.
Timing chains. Booth No. 89.

AUTOMOTIVE GEAR WORKS, Rich-
mond, Ind. Differential and starter
gears. Booth Nos. 90-91.

MCGILL METAL CO., Valparaiso, Ind.
Ball bearings and castings. Booth No.
92.

WEL-EVER PISTON RING CO., To-
ledo, O. Pistons and rings. Booth
No. 93.

TOLEDO STEEL PRODUCTS CO.,
Toledo, O. Valves. Booth No. 94.

SMALLEY ACCESSORIES CO., Chi-
cago, Ill. Inner rings. Booth No. 97.

RAMSEY ACCESSORY MFG. CO.,
St. Louis, Mo. Inner rings. Booth
No. 98.

WILLIAM & HARVEY ROWLAND,
INC., Philadelphia, Pa. Springs. Booth
No. 99.

MALLORY ELECTRIC CORP., Toledo,
O. Ignition coils. Booth No. 100.

ACCURALITE CO., Muskegon, Mich.
Pistons. Booth Nos. 101-102.

WARREN GEAR PRODUCTS CO.,
Warren, O. Ring and pinion gears.
Booth No. 103.

NEW ENGLAND AUTO PRODUCTS
CO., New Haven, Conn. Universal
joints. Booth No. 104.

AUTOMOTIVE MFG. CO., Kansas
City, Mo. Battery terminals, cable and
electric parts. Booth No. 106.

PARTS MFG. CO., Cleveland, O.
Bolts, nuts, screws, washers, etc. Booth
No. 107.

RAJAH CO., Bloomfield, N. J. Spark
plugs and terminals. Booth No. 108.

STAR PRODUCTS & MACHINE CO.,
Cleveland, O. Valves, guides, lifters,
cages, etc. Booth No. 110.

HOUPERT MACHINE CO., Long
Island, N. Y. Pistons. Booth Nos.
111-112.

BUCKEYE BRASS & MFG. CO.,
Cleveland, O. Bearings and bushings.
Booth No. 113.

SERVICE SPRING CO., Indianapolis,
Ind. Chassis springs. Booth No. 114.

AMERICAN STEEL EXPORT CO.,
New York, N. Y. Export information.
Booth No. 115.

W. B. HUBER & CO., Los Angeles,
Cal. Pistons. Booth Nos. 116-117.

(Continued on page 38)

The READERS CLEARING HOUSE

Questions And
Answers



On Dealers
Problems

Correction on Chevrolet Oiling System

Our attention has been called through the courtesy of the Chevrolet Motor Co., to an error which occurred on page 29 of the September 23, 1926, issue of *MOTOR AGE*. In an article on the oil pump of a 1926 Chevrolet it was said that the spring should be stretched to increase the oil pressure. This instruction is incorrect and the spring should not be tampered with. These springs are very carefully made and calibrated to give just the right action in the Chevrolet lubrication system. Accordingly if a spring should be damaged

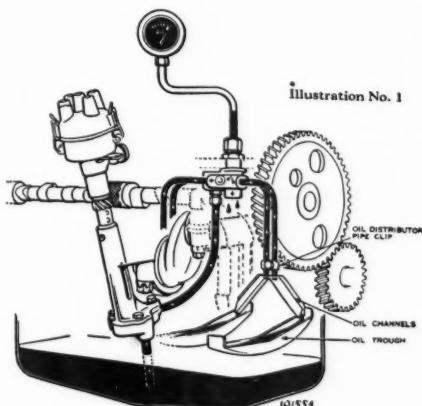


Illustration No. 1

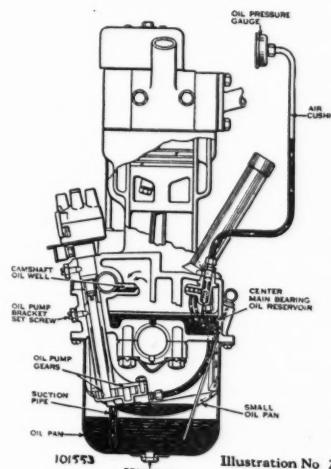


Illustration No. 2

Two views showing path of the oil

in handling it should be replaced with a new spring instead of an attempt being made to repair the old one.

Additional information in regard to the Chevrolet lubrication system has also been supplied so that *MOTOR AGE* readers may be able to reinstall the oil pump correctly in case work is done on the engine.

In securing the oil pump assembly to

the cylinder block (see illustration No. 2) be sure that the oil pump bracket set screw is fully seated and then locked in position by means of the lock nut. The taper on this set screw fits into a tapered hole in the oil pump bracket and when carefully installed centers the oil pump body between the throws of the crankshaft. In assembling the oil distributor and oil pipe assembly to the cylinder block and before replacing the oil pan, three important points should be noticed. (a) The crankshaft should be revolved and the maximum clearance possible secured between crankshaft throws and oil distributor pipes. (b) In replacing the oil pump to oil distributor feed pipe, this feed pipe should be kept as close to the center bearing web of the cylinder block as possible in order that it also may have a maximum clearance. (c) The ends of the oil distributor pipes should not extend below the cylinder block more than $\frac{1}{4}$ in. and these pipes should enter their respective oil channels (see illustration No. 1), leading to the oil troughs and should be locked in this position by means of the oil distributor pipe clips, also shown in the illustration.

In illustration No. 3 the oil is forced into the distributor by the oil pump. The upper end of the oil distributor valve is notched (see illustration No. 3), to permit the oil to pass through to the oil gage pipe which is assembled to the oil distributor fitting. This equalizes the pressure above and below the notched portion of the valve. However, a pressure is exerted downward against the lower end of the oil valve which forces the valve down against the oil distributor valve spring (see illustration No. 3), till the pipes leading to the troughs are uncovered. This condition exists while the engine is running. When the engine stops the oil distributor valve spring (see illustration No. 3), forces the oil valve up again closing the outlet to the oil distributor pipes. The pressure on the gage will not drop to zero until the oil has drained back through the pump and relieved the gage pressure.

FREEZING POINT OF ELECTROLYTE

Q.—Give the freezing point of a battery at specific gravity of 1175, 1200, 1250 and 1280.—Dows Neil, The Neil Bros. Co., Canton, Ohio.

We will give a little bit more than you asked. At 1100 the freezing point is 18 deg.; at 1125, 12 deg.; at 1150, 4 deg.; at 1175, 5 deg. below zero; at 1200, 20 deg. below zero; at 1250, 60 deg. below zero, and at 1280, 97 deg. below zero.

This Gasoline Gage Works Mechanically

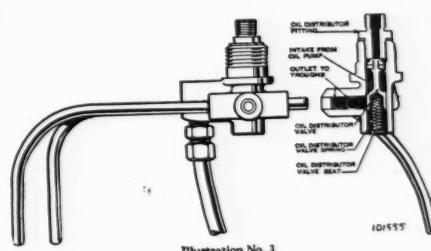
Q.—Explain how the gasoline gage works on a 1922 6 cylinder Buick.—Lawrence Colbrese, Box 9, Glendive, Mont.

On the open models the dial indicating gage is mounted on the gasoline tank. In this gage a cork float is used which operates an arm. On this arm is a gear which operates another gear which in turn rotates the dial shaft. Accordingly as the float rises and falls the dial turns on the gasoline gage. In the closed models the construction is similar except that the indicating mechanism is on the instrument board. A flexible tube which contains a piano wire connects from the tank to the instrument. As the float rises and falls the wire inside the tube advances or recedes and thus operates the gage.

TOE IN WITH BALLOON TIRES

Q.—We have just completed changing the tire equipment on a 1921 Essex four cylinder roadster from 32 by 4 cord tires to 30 by 5.77 balloon tires. We would like to know the proper set for the front wheels of this car with the new tires.—A. M. Allan, Allan & Murray, Sapulpa, Okla.

The toe-in should be from zero to $\frac{1}{8}$ in. With balloon tire equipment it is generally considered advisable to have a continuation of the king pin strike the center of the road at the same place that the center of the tire strikes the road. However, we do not believe it would be advisable to tamper with the steering knuckles in order to meet any theoretical consideration. It is important however, to balance the front wheels to see that there is no appreciable tendency for the wheels to settle in any position when jacked up. It is desirable to have the front system tight so that there is little or no backlash between the steering wheel and the front wheels. Any looseness in the front system makes it easy for a shimmy to start.



View showing oil distributor spring

Planning Your New Building

Ford Dealer Wants Up-to-date Layout for Brick Building—Two Stories

By Tom Wilder

Q.—Am enclosing a sketch of a corner lot 100 by 150 ft. on which we want to put a real up-to-date garage, storage and repair department. Would you suggest a full basement or a basement just large enough for furnace and coal or would it be cheaper to build a second story in place of the basement. Want a nice showroom and office. Building is to be of brick. Would it be advisable to span 100 ft. with wood or steel beams. Can you give estimate of cost of building as your plan will call for. We handle the Ford, Lincoln and Fordson.—Las Vegas Sales Co., East Las Vegas, N. M.

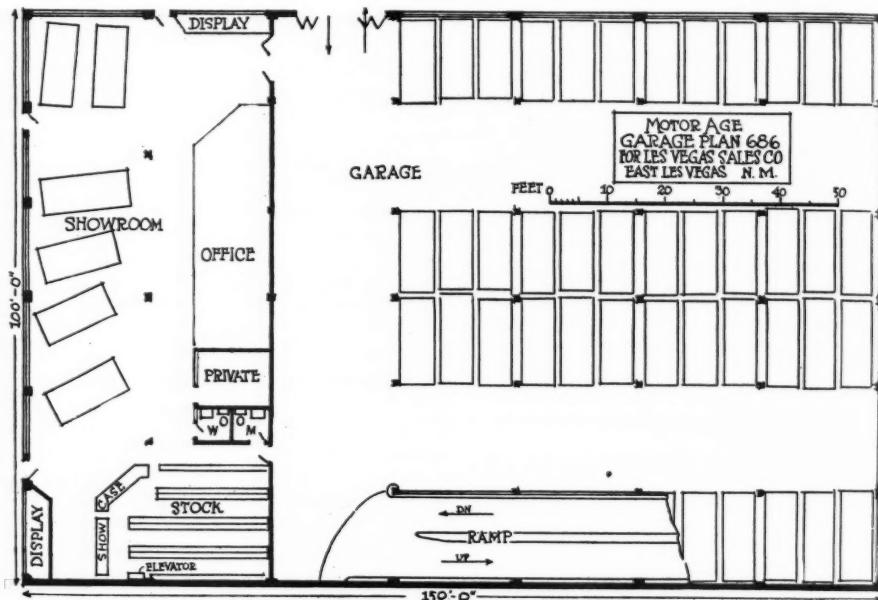
It will make very little difference in this layout whether a second floor or basement is used. Where the second floor is used the shop should be in the front of the building, using about 60 ft. of the depth. That will leave about 90 ft. in the rear for storage and the arrangement of cars would be about the same as on the first floor, shown in our layout.

If you use the basement arrangement the whole floor should be devoted to storage and in that case nearly the whole first floor aside from the entrance passageway through the center to the ramp, may be converted into shop. If you do not use the second floor the columns arrangement would not be necessary on the main floor, the roof being trussed instead, but the columns can be used in the basement as it is, with the exception of the arrangement in the showroom or front part where two columns should be used in place of one on either side.

We favor the main floor and second floor arrangement because it gives a little more privacy to the shop and also gives a larger looking building which conveys the idea that you are a bigger concern and gives you more prestige with the public. Basement storage space is also always dark and gloomy and never so popular with the customer.

If you have your stockroom on the second floor you can arrange the bulk of your parts stock directly over the stockroom we have shown and this may be cut down and used for accessories and some of the smaller parts. A small elevator or dumb waiter will connect the two.

It is not practical to span 100 ft. spaces with either wood or steel beams carrying any considerable weight. Roof trusses of this length are practical but here we are suggesting 50 ft. trusses with their abutting ends resting on a row of columns.



This building could be used either with second floor or basement. If shop is wanted on the main floor basement should be built for storage

LEGAL QUESTIONS ANSWERED

By Wellington Gustin

COURT MUST DECIDE

Q.—I purchased a car several months ago and the car was given to dealer by a woman to sell for her on a commission. The dealer sold the car to me for \$350.00 as follows: \$140 cash (note for \$90 included in this \$140), balance \$210 entered as a mortgage in the usual form. After using the car a few weeks I learned that the dealer had violated the Texas law in not giving me bill of sale when he delivered the car. I also answered an inquiry from the bond company to whom he sold my paper and he had raised the paper to read \$200 cash, balance \$250, making the balance \$40.00 higher. The bond company had the dealer in jail over it and at the same time I received a letter from the woman who originally owned the car saying that the dealer had asked her to write me a bill of sale. The woman however replied to me saying she would gladly give me a bill of sale when I paid her for the car. She acknowledged giving the car to the dealer to sell for her but she was to pay him a commission for selling. The bond company claims that if I will complete their payments they will have the court give me a bill of sale. I have asked three attorneys in the state and they are of a divided opinion as to whether the court will write a bill of sale and also whether the woman can call in her car if she desires. Pierce Arrow 38.

A.—Your obligations arise out of the

actual contract you made with the dealer. He alone is responsible for what he did with that agreement. But of course if there were changes made in the notes, mortgage, etc., it becomes a matter of evidence for you to be able to show any changes. If you demanded copies of all papers then the changes will appear from comparison.

Now if the finance or discount company has your notes, etc., and demand payment and the owner of the car demands payment, then it is well that you let them establish their respective claims in court, in order that you may not be forced to pay twice. You might pay the notes when due to the bond company and find another the rightful owner of the car. Your failure to demand and receive the bill of sale might be used as evidence against your claims and favorable to the original owner.

The rule of law is that the principal is responsible for the acts of the agent acting within the apparent scope of his authority. Evidence alone would show what the agent's authority and apparent scope was. Ordinarily, the facts you present would show the dealer was act-

(Continued on next page)

Answers to Readers' Questions

Valve Timing for Packard Six

Q.—Give valve timing data on Packard Six, serial U5429. The flywheel has been changed on this car so I would like to have this data in terms of piston travel and also in terms of chain spacing.—Robert A. Benney, Kemmerer, Wyo.

We can give you the timing in terms of degrees on the flywheel. The inlet opens 9 deg. after top dead center which would be approximately $\frac{3}{4}$ in. measured in movement of the starting crank handle. The exhaust valve closes 4 deg. after top dead center which would be about $\frac{1}{2}$ in. measured in terms of movement of the starting crank handle. Accordingly if you set the engine on dead center you can easily move it $\frac{1}{2}$ or $\frac{3}{4}$ in. farther to get the timing of the valves. You should then find that the chain can be readily applied. If you get the timing as close as we have indicated the meshing of the chain should give it to you exactly.

NEUTRALIZE THE SOLUTION

Q.—I am using a Ford engine to pump water with, but only use it about 3 hours every other day. I use a 30 gallon drum for cooling. Would like to put something in the water to keep it from freezing. Can you give the name of some cheap chemical that will answer the purpose?—S. W. Moebius, Frisco, Utah.

Calcium chloride is a chemical which is ordinarily not recommended for use in radiators because if it contains any free acid it will attack the solder and other metals in the radiator and cause leaks. However, in your case where you use a large iron or steel drum this would not be of such consequence. If calcium chloride is used it should be

(Continued from preceding page)

ing within his authority in making the terms of sale to you, and if so, the owner would be bound by the terms of the contract with you. If there is any loss to be suffered by the fraudulent acts of the agent, the rule of law is that that loss must fall upon the principal, rather than an innocent party to the contract. Apparently, your difficulty is one of facts rather than in the law.

How the owner was to pay the dealer for his services in making the sale, and other provisions of the agency agreement between them does not concern you. But what does concern you is whether this agent was acting within the apparent scope of his authority when he made sale of the car to you. If he was, then you can stand on your contract of purchase and force the owner or principal to deliver you bill of sale, through court, if necessary.

dissolved in water until no more will dissolve. Then 20 pints of this solution should be used with 60 pints of water in order to get a mixture that will freeze at 20 deg. below zero.

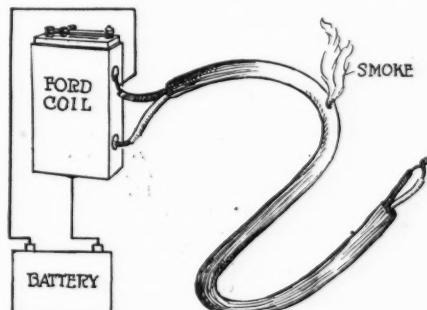
Such a solution will have a specific gravity of 1.230. You might find it cheaper to install a Ford radiator for the winter, also a fan and fan belt, if necessary and use glycerine in the cooling system. The decision depends somewhat on the price you would have to pay for calcium chloride which you should obtain from some wholesale drug concern or chemical supply house. If calcium chloride is used you should get a piece of blue litmus paper from the drug store and see if it turns red when dipped in the solution. If so ammonia or soda should be mixed with the solution to neutralize it. When the blue paper no longer turns red and the red paper will not turn blue you have the solution perfectly neutralized.

SHOP KINKS IDEAS

That have been Found Useful

LOCATING BREAK IN DROP CORD

Here is a method of finding a break in a cable used for a drop light or electric drill. Twist two ends of the cable together and take the other two ends and connect them to a Ford coil. Operate the coil and detect the break by a buzzing noise where the spark has to jump the gap. The spark will also burn the insulation and smoke will show the place where the break has occurred.—Oklahoma Subscriber.



Readers of MOTOR AGE are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published \$2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.

Sprung Shaft May Cause Hard Shifting

Q.—I have a customer with a 1925 Reo sedan and would like to have you tell me why it is hard to shift the gears in this car. I have looked over the clutch and that works O. K., and have also put in lighter grease in the transmission and still it shifts hard on the road, especially from first to second, but when the car is standing still it will shift all right. Please advise me where to look for the trouble.—Island Garage, Minocqua, Wis.

We assume from your statement that the clutch is O. K. and that you are not being bothered by gears clashing, but something seems to stick or bind when shifting. It would hardly seem likely that a 1925 car would have much wear in the transmission, but it is possible that some foreign object has gotten in here at some time and sprung the sliding gear shaft. If this were eccentric the sliding gears would tend to jam against the shifter fork and might also bottom in the counter-shaft gears. We would suggest that this sliding gear shaft be removed and carefully checked. To do this place the shaft between centers and with the aid of a dial indicator see that the reading in the center of the shaft taken on the top of each spline is the same. If this shaft is out more than .003 in. a new one should be installed. It is also possible that the shaft is a little soft and that the gears, due to violent strain have either cut into the splines slightly or have twisted the shaft. Either condition would result in hard shifting. You say that you have placed a light grease in this transmission. Due to the close fit of the different parts and to the design in general the factory recommends a heavy body oil such as steam cylinder oil, generally called 600W, as grease does not have the free flowing qualities that this transmission requires. If difficulty were experienced in shifting gears with the car standing still we would suggest checking up on the movement of the shifter rods and plungers, for these sometimes become sprung and thus jam.

PUT IT ON RIGHT

Q.—I have noticed a sound in a Chevrolet which sounds like water dripping on a tin pan. What causes this and is there any remedy?—Tennessee Subscriber.

This is apparently one of the valves that is striking the valve cover due to the cover being incorrectly installed. If you will move the cover slightly you will find a position where the knock does not occur.

Clearing up Electrical Troubles



Motors at High Speed When Off Neutral

Q.—If you look up the diagram for the internal circuits of the generator on the 1925 Essex coach, you will see that they are exactly the same as the circuits for a Ford generator, there only being a difference in connection of the wires. Namely one end of the shunt field is grounded and one main brush also grounded, making the only difference, as this wire grounds directly to the frame or yoke of the generator instead of being grounded at the brush holder. I had some work to do on an Essex generator and tried it out to see if the brushes were in the neutral position. I found that with all brushes touching the commutator, the armature would rotate at about 400 R. P. M. in the normal direction. Then when I raised the third brush it started to speed up until it must have been turning about 800 to 1,000 R. P. M. If I dropped the third brush again it was as if a very heavy load had been applied, and the machine would again slow down to about 400 R. P. M. I cannot see why this generator should operate any differently from the Ford generator which will stop rotating if you lift the third brush. Of course the main brushes on the Ford generator are adjustable and those on the Essex are not adjustable. I tried out another Essex and found it to be identical with the supposedly faulty machine, so replaced both generators and they worked fine. However, this generator that I have been working on causes trouble due to overheating and even when only charging 8 amp. it gets so hot you can hardly touch it. The generator voltage never goes above 6 volts.—North Bend Garage, North Bend, Wash.

In setting the main brushes of a Ford generator we usually recommend that they be set on neutral so that there is practically no tendency for the armature to rotate. However, it is often considered permissible to set the brushes slightly off neutral so that there is a slight tendency for the armature to rotate in the normal direction. In the Essex generator that you refer to the armature is apparently wound so that there is a little more than the usual tendency for the armature to rotate in the proper direction. On this machine as on the Ford generator you would find that there would be no tendency to rotate if you could put the brushes in the exact neutral. If you wish to try an experiment you might rock the end bracket a slight amount, by having the screws loose or removing them entirely and just clamping the generator together.

The question of generator voltage is one that is determined by the battery. The reason that you only get 6 volts from the generator is that your charging rate is so low you do not keep the battery in a fully charged condition. However, if you should put a battery in the car which is fully charged and up to 1300 specific gravity and then

Edited By A. H. Packer

start up the engine you would find that you would get more than 6 volts at the generator. You should get about 7.5 at the battery and about 7.8 at the generator. The trouble with the machine may be due to the fact that at some time the armature has been rewound and wire has been used which is not the right size. Another possibility is that the armature at some time has rubbed the pole pieces and the various laminations or pieces of sheet iron of which the armature is made are burried over so that they are short circuited. This will make little local currents flow in the core of the armature and cause heating.

Try Changing Armatures

As an experiment would suggest that you change armatures between the good machine and the one which overheats and then see what happens, running them for considerable length of time so that you get a good test. Another possibility is that the armature is slightly rubbing the pole piece, but does not show up when there is no current through the machine. To test for this condition you can run current through the field winding only, while the generator is on the bench. With no current flowing the armature will turn freely. With field current flowing it should drag a slight amount, but if the armature hits the pole piece you will find there is a certain place where you can hardly turn it due to the armature striking.

SPECIAL FORD IGNITION GEARING

Q.—I would like to get some information regarding distributor gears. I am trying to put an Auto-Lite distributor with gear and worm on the back of my Ford generator and so obtain double ignition. My car has a Rajo head with a Delco battery system. The worm gear is to be welded on the back of the armature shaft. In order to get proper ratio, what gears must I use. I have tried Chevrolet 7-13, Auto-Lite 7-14, Star 5-12. None of these gives the right ratio. The Ford crankshaft gear has 24 teeth and the generator 16. I do not want to use a dual magneto system so if you could give me the correct ratio to use, also tell me what type gear should be used and the name of one I could get, I would appreciate the favor.—Seeley's Garage, Bend, Ore.

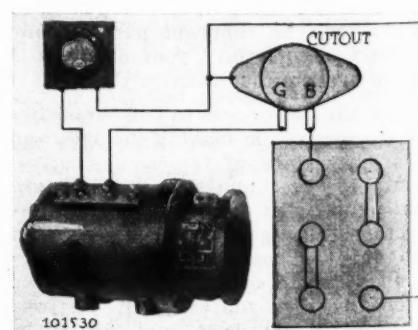
As the Ford generator has 16 teeth and the crankshaft 24 teeth, the generator runs at 1½ times engine speed. It will therefore be necessary to obtain a 3 to 1 gear ratio for your ignition and any gears such as 7 to 21 or 5 to 15 will be correct.

Battery Charging with an Old Generator

Q.—I am enclosing a picture of a generator taken from a 1915 Studebaker and would like to know which way this generator should turn when driven by a gas engine. Would also like to know which terminal of the generator is positive and how it should be wired with cutout and ammeter for charging battery.—Nebraska Subscriber.

This is a third brush generator which can be wired as shown in the illustration. We have extended the picture you sent us and have drawn in a cutout and a battery. An ordinary Ford cutout can be used. To find the direction that you should drive this machine connect a battery to the two terminals of the generator. This should cause it to rotate slowly as a motor. This is also the direction in which the gas engine should drive the machine when it is operating as a generator. According to information in our files this machine should rotate counter-clockwise as seen from the commutator end.

It does not make any difference which way you connect the battery. Before starting up the gas engine however, short circuit the generator and battery terminals of the cutout so as to allow battery current to flow through the generator winding. This will magnetize the generator in the right way so that it will charge the battery as soon as the engine starts. When you magnetize the generator in this way you will notice that there is a discharge on the ammeter. The needle will go to one side of the scale. When the engine runs and the ammeter shows charge the needle should go to the other side of the scale. After you have charged the first battery it would be well to notice which terminal you have used for the positive and which for negative. Then you can connect other batteries in the same way. If you do not pay any attention you will have to short circuit the cutout every time you put a battery on the line in order to make sure that the generator is magnetized in the right direction.



Connecting a two wire generator for battery charging

Clearing Up Electrical Troubles

Path of Current in Stutz Double Ignition

Q.—I saw an article recently on the Double Ignition System used on the Stutz Vertical Eight and can't quite understand how the current flows, as you have the arrows pointing and how the current gets from one plug to the other and then flows back to the coil. Will you please explain this to me?—S. E. Archibald, 109 N. 9th Street, Olean, N. Y.

It is understood of course that current must have a complete circuit or path in order to flow. For example in the conventional systems of ignition using single plug the current will flow from the coil to the plug jumping from the center electrode to the frame and return to the coil by way of the frame of the car. In this new Stutz ignition we have a similar condition except that the current flows from the upper terminal of the coil as shown in Fig. 1 on page 15 of the July 15, 1926 issue of *Motor Age* and to the center terminal of the distributor cap. From here it passes to the rotor and if you will now refer to Fig. 3 on the same page you will see that it can pass out by way of metal arm A, flowing through the high tension ignition wire to the spark plug at the left of the block. Here it will jump from the center electrode to the shell of the plug and travel through the cylinder block and jump from the grounded electrode to the center electrode of the plug on the right hand side. The current must then travel through the high tension ignition wire back through the distributor cap, where it is conducted by the carbon brush of the rotor to the offset terminal on the top of the cap. From the offset terminal it returns to the bottom of the coil and thus completes the circuit.

Also please send me correct timing or setting for the Auburn 8-88, that is the valve setting and spark timing.

The intake valve opens at upper dead center and closes at 35 deg. past lower dead center. The exhaust valve opens at 42 deg. before bottom dead center and closes 5 deg. after upper dead center. When checking this valve setting the clearance at the valve stem should be .010 of an inch and after satisfying yourself that the setting is correct it can be reduced to .006 or .008 of an inch for silent operation. The breaker points should just begin to open with the ignition fully retarded when the front flywheel has moved 1 in. from upper dead center.

BATTERY ALWAYS OVERCHARGED

Q.—On a model 92 Overland with Auto-lite electrical system where the car works only in the day time and uses self starter and horn but no light the battery is full charged and shows 8½ volts. Hydrometer reading is 1300 and

the lights are bright. Generator charges 18 amps. at 20 miles per hour and drops suddenly when the car runs at a greater speed. What steps are to be taken to keep the battery from overcharging?—S. Sunder Rao, Mercara, Coorg Dist., India.

The first thing to do is to discharge the battery until the gravity is about 1250. Then adjust the third brush by shifting it against the direction of armature rotation until you get 8 or 10 amp. charging rate. Then test the battery every two or three days to see whether the gravity is going up or down or whether it is remaining about constant. If the generator constantly charges too much so that the battery gravity always gets up to 1300 then you can discharge the battery occasionally by leaving the lights on overnight.

A. C. OR D. C. CONDENSER TEST

Q.—Is it possible to test condenser with 110-volt test lamp? Please explain the procedure.—S. E. Archibald, 109 N. 9th St., Olean, N. Y.

A test lamp operating on 110 volt D. C. works very well. As shown in the

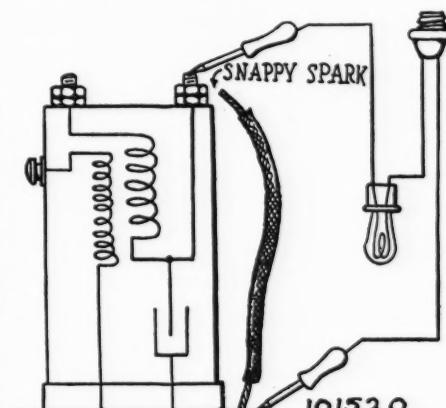


illustration the test points should be put on the condenser terminal, regardless of whether the condenser is inside the coil or outside and then a wire or pair of pliers should be used to short circuit the condenser. A snappy spark which makes a noise like the crack of a small whip indicates that you have a condenser. This of course is no check on the exact capacity but does tell that you have a condenser and also tells that the condenser is not shorted or open. If the test is made with alternating current you will get a good test two or three times out of ten. Sometimes the test is made just as the alternating current goes through its zero value and of course this does not give the results desired.

Charging Rate High But Acid Gravity Is Low

Q.—We have a 1925 Chevrolet with Remy starting and lighting system. The car works only in the daytime and uses no lights or horn. At times uses self-starter. Dynamo works well showing 18 amp. charge at 20 miles per hour. Generator has third brush system. Hydrometer shows pure water or less than 1100 specific gravity. Voltmeter shows 9½ volts. Battery cells are not leaking. Battery and car are less than one year old.—S. Sunder Rao, Mercara, Coorg Dist., India.

It looks as if acid has been dumped from the battery at some time and water added instead. In some cases cracking of the compound at the top of the battery will allow acid to work out slowly and it will blow away so that the leakage is not noticed. The thing to do is to charge the battery until the electrolyte bubbles or gases. This shows that the battery is pretty well charged. Then if the charging is continued at 4 or 5 amp. for 2 or 3 hours it will give a full charge. Next allow the battery to stand for 3 or 4 hours until the bubbles are all out of the electrolyte. Then if the gravity is below 1280 you can remove some of the solution and add acid of 1400 specific gravity to bring the resultant gravity up to 1280 or 1300.

After the battery is put in condition as above indicated the charging rate should be reduced to about 12 amp. This is done by loosening the third brush and moving it against the direction of armature rotation until the desired charging current is obtained. The 9½ volt reading is too high. After the battery has been put in condition and the charging rate corrected you should take voltage at the generator and at the battery with the engine running. The generator voltage should be about ½ volt higher than the battery voltage, and if there is a much greater difference it indicates a poor connection or corroded contact somewhere in the charging circuit between generator and battery.

GENERATOR DRIVE SUGGESTION

Q.—In the July 1, 1926, issue of *Motor Age* relative to the difficulty which Mr. L. R. Kaniipe experienced with a generator driving coupling breaking on his Essex car, the difficulty may be due to worn generator bearings allowing the armature to revolve too close to the field coil causing a drag.—Paul Williams, Taylorville, Ill.

We appreciate the suggestion submitted but are of the opinion that if the armature were dragging on the pole pieces that the friction produced would very promptly overheat and destroy the generator.

NEW DEVICES FOR SHOPMEN

"Perfectlap" Piston Pin

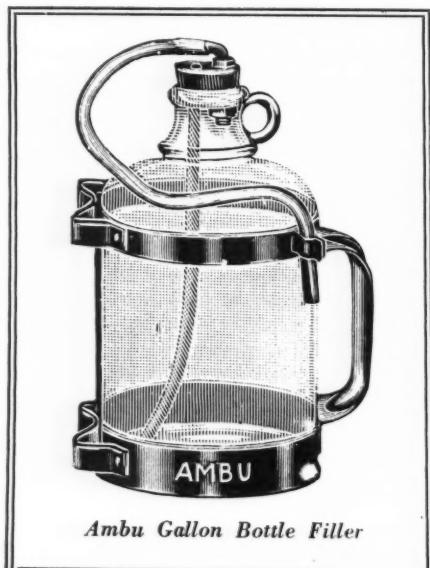
Declared by the producers to be constructed from the finest grade of steel, finished accurately and with exceptional smoothness the B-N Perfectlap Piston Pin is a new item on the list of the Burgess-Norton Manufacturing Company, Geneva, Ill. It is claimed that the unusual smooth finish makes possible fitting this pin with an allowance for oil clearance so the pin gives immediately the same service a ground pin gives after being run 2000 or more miles. "Wearing in" is eliminated and thousands of miles service is added, the manufacturers say. Ease of fitting is a feature being emphasized.

HB Battery Charging Panel

Hobart Brothers, Troy, O., are makers of the HB Battery Charging Panel. This outfit includes four separate lines on one board so that every battery on the bench may be connected to any line without moving it. One line carries the regular charging rate; the second line gives ammeter reading; the third line provides 5 amperes resistance for batteries requiring it; the fourth line provides 10 amperes resistance. All lines are plainly marked. The panel provides a system on the order of the telephone switchboard and is furnished complete with special plug-equipped leads. The capacity of one panel is 10 batteries at one time. For larger capacity additional panels should be used. Price \$35, f. o. b., Troy, O.



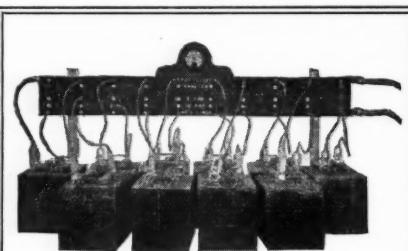
"Perfectlap" Piston Pin



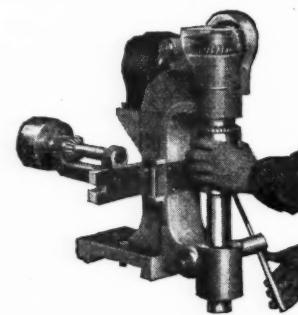
Ambu Gallon Bottle Filler

Hartman Piston Expander

The Hartman lynite piston expander is made to expand lynite pistons when they are too small for the cylinders. The process is through a special heating of the piston, which, it is claimed, after properly cooling will retain the intended size as long as a new piston. Any size can be obtained with the tool, as it is made with accurate adjustments, expanding as much as desired. It is said the pin holes are not affected. The piston also is perfectly rounded on the skirt both on the upper and lower parts. The tool retails for \$21. It is marketed by the Babbitt Sales Agency, 2207 E. 59th street, Kansas City, Mo.



Hartman Piston Expander



Dall Chamfering Machine

Dall Chamfering Machine

Dall Motor Parts Company, Cleveland, Ohio, has brought out a machine for chamfering pistons and reaming piston pin holes. It will chamfer in three seconds any size piston up to and including 5 1/4 inches diameter. Change from one size to another may be made in one minute. The machine can be operated off the light socket or can be placed on a lathe and operated off a line shaft. A reaming attachment is built into the machine for reaming piston pin holes. It is equipped with a 4-jaw universal chuck and the construction permits the operator to pass the piston over the entire surface of the reamer blades. When not in use the attachment swings out of the way.

Four hard steel chamfering reamers come with the machine in addition to seven turning and grinding adapters which will turn and grind any size piston up to and including 5 1/2 inches in diameter. This is a device which the makers say will not wear out.

Ambu Gallon Bottle Filler

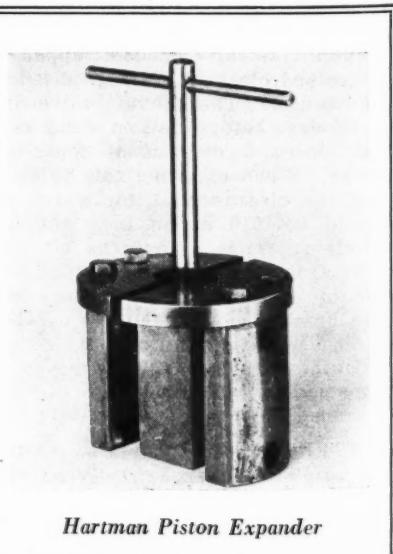
A new type of Battery Filler, known as the Ambu Gallon Bottle Filler, has been brought out by the American Bureau of Engineering Co., 1720 S. Michigan Avenue, Chicago. Because of this filler's upright design the manufacturers say it cannot spill or leak. The filler has one-gallon capacity. In refilling it is only necessary to rest the filler in an upright position remove the cork and pour. The bottle is protected from breakage by a metal frame.



Milburn Torch

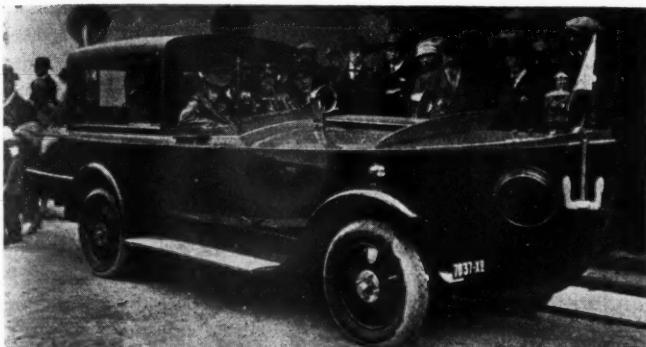
Milburn Gas Cutting Torch

A gas cutting torch which is said to operate efficiently and economically on city gas or by-products gases is being made by the Alexander Milburn Company, 1416-28 W. Baltimore Street, Baltimore, Md. An outstanding feature of the Milburn Torch is the superheater which heats and expands the cutting oxygen, also the preheating gases, raising the temperature of the cutting oxygen to approximately 100 deg. C. prior to combustion. This, it is said, increases the temperature of the gases at the torch tip, increases the rate of flame proportion in the burning mixture and greatly reduces the oxygen consumption. There is a Bunsen burner in the torch which burns illuminating gas and heats the cutting oxygen as it passes through a series of copper coils. There is a thumb valve cutting oxygen control and the torch is 21 inches in length and supplied with tips for light, medium and heavy cutting.

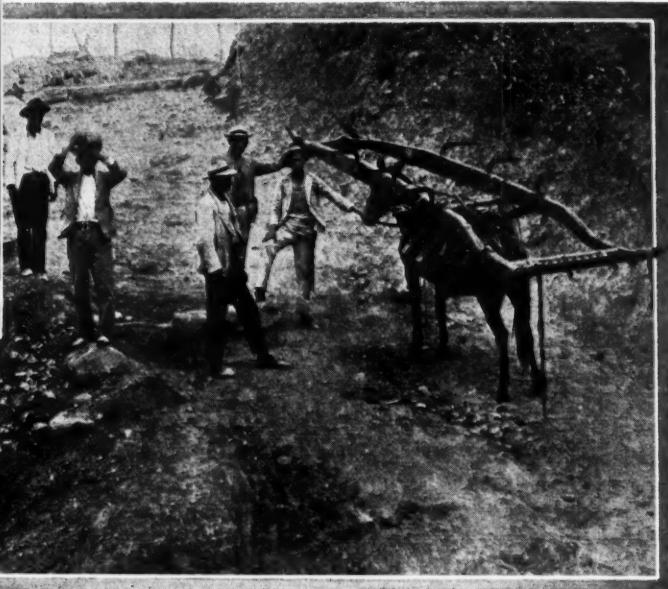


Hartman Piston Expander

MOTOR QUIPS HERE and THERE

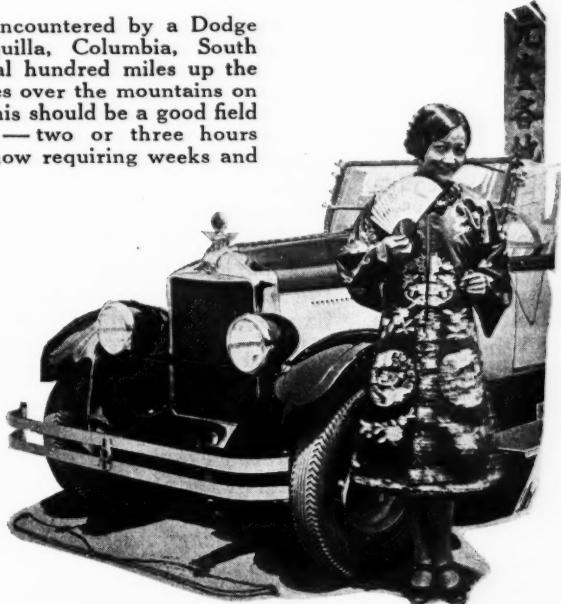


A MOTOR BOAT
BODY built on an automobile chassis was a method adopted by Peugeot to advertise the boat section of the Paris Show. Twelve of these boats circulated on the Paris streets.



DELIVERY DIFFICULTIES encountered by a Dodge Brothers dealer at Barranquilla, Columbia, South America. After going several hundred miles up the river they are packed in pieces over the mountains on donkeys to Bucaramanga. This should be a good field for Ford's airplane delivery—two or three hours would accomplish the work now requiring weeks and hundreds of dollars.

MISS ANNA MAY WONG, Chinese film star, beside the new Moon Six Sixty Roadster. We hope Miss Wong has purchased the car but one can't bank too much on these movie people; she may be vamping the dealer into the use of it. Miss Wong is now engaged at the Hal Roach Studio playing the role of an Indian girl, the leading part, in "The Desert Toll."



UNIQUE SIGN POST to be seen in Maine. It is probably more novel than useful judging from the perplexity of the young woman who is trying to see what it is all about.



PORTABLE BROADCASTING STATION installed, on a Cadillac Roadster and used to relay sporting and other news events to Station KTCL, Seattle. Miss Marie Hill is here seen broadcasting "Juaneta's Shopping Tour"—a daily feature of the Woman's Hour Program.

Age of Color in Automobiles Has Arrived, Says Expert

By H. LEDYARD TOWLE

(In the following letter from Paris, Mr. Towle, who is a color expert connected with one of the large manufacturers of automobile finishes, gives his impressions of the Paris Salon.)

PARIS:—The hunter's moon hangs low over the Place Vendome, and in the gardens of the Tuilleries the fallen leaves rustle underfoot.

Autumn is in the air . . . and the Automobile Salon is on. All Paris is color mad! At the Grand Palais, where the motor car creations of the great manufacturers stand in rows like the King's guard upon parade, there are glints of burnt orange, and the dull rich warmth of maroons; taking their place in the color harmonies of the whole and giving forth a note like the muffled sound of a convent bell.

Never before such a spectacle. No longer the dead monotony of somber hues. Here is beauty, and life and soothing satisfactions for the eye, studied from Nature herself and deliciously reproduced in endless and ever-changing subtilities. The motor car is expressing at last the aesthetic ideals of its owner.

Town cars of jade. Roadsters of cafe-au-lait and crimson. Sedans of orchid and sable. The colors of the lagoons in Venice at mid-day. The myriad golden browns and copper-reds and brown-yellows of the autumn leaves. Greens of the spring brookside and rich scarlets that vision poppies and sunsets.

Outside along the Champs Elysees the changing kaleidoscope thrills with its never-ending stream of harmonies. The haute monde and the demi monde in whirling squadrons of satisfying color rolling past upon the smooth pavements like a flashing mountain torrent at the end of a rainbow. And here and there soft punctuations of wine color and black—the Paris taxicabs, for wine color and black is proper in a Paris taxi.

One night I attended a great function at the Opera. The Pageant of Transportation! Here the brilliant hues worn by the crowd were like a gorgeous Spanish shawl as I gazed down upon it from one of the little balconies overlooking the Grand Staircase. Gone are the gloomy simplicities of the past.

The President's Guard was there at attention, with their drawn sabres and gilded helmets gleaming. Inside, along the horseshoe, the boxes looked like veritable baskets of flowers hung along the walls. So filled were they with beautiful women, their gowns of orchid, peach, Rose de Versailles, Saint Germaine green, glacier or cloth of gold, being accented by the dark notes of the evening clothes worn by their escorts.

Yes, the Age of Color is indeed here! Now, whatever our nationality, our estate, or time of life, we can dare to express our color individuality, each in his own way; in our homes, our furniture, our automobiles and ourselves.

Safety Organization Backs Uniform State Traffic Code

(Continued from page 15)

lision between automobile and railroad or street cars.

"It seems to me that the only proper basis on which to compare progress or retrogression in accidents is to consider them in relation to population and number of motor cars in use.

"In 1917 the population of United States was 102,000,000. In 1925 it was approximately 110,000,000, an eight per cent increase.

"In 1917 there were 5,104,000 motor vehicles regis-

tered with a fatality list of 9097, on 178 per 100,000 vehicles

"In 1925 there were 19,900,000 vehicles registered with 19,825 fatalities, or 100 per 100,000 vehicles.

"Had the rate in 1925 been the same as in 1917, then 35,422 fatalities would have resulted, but instead there is a reduction of 15,594 or 44 per cent. Forty-four per cent reduction in the face of an eight per cent increase in population and a three hundred per cent increase in the number of motor vehicles—that's a measure of the general result of the work done in the United States for more complete safety.

"Therefore, I believe that everyone who has worked in the interest of safety—organizations, cities, towns and villages—should be warmly commended and encouraged to give still further of their splendid thought and action. You are gaining and winning—there is no question about it; and you have great cause to congratulate yourselves on the results accomplished."

Hennecke and Storz to Lead A. E. A. the Next Year

(Continued from page 9)

series, supplies, equipment and maintenance service have been emphasized. It has been shown that dealers and garagemen who actively cultivate this business and operate their establishments on a sound basis are making money.

At its annual convention a year ago the association appropriated \$50,000 for carrying on the merchandising work. Seven months later at its summer meeting in Montreal it voted to double this appropriation and to make the additional funds available immediately. Already results have been so gratifying and the possibilities have appeared to be so great that still further expansion is in prospect. Contributing to the success of this market development activity, has been the work of the association's executive officers, Commissioner William M. Webster and his assistant, J. E. Duffield.

The program of the convention, which is to continue through the week, includes four general sessions and several divisional sessions of the manufacturing and jobbing groups. The annual banquet was scheduled for Thursday evening with Howard E. Patterson presiding.

One of the important affairs of the week was the association's participation in the Armistice day luncheon of the Chicago Association of Commerce on Wednesday. At this luncheon the Foreign Trade Committee of which E. C. Guthard is chairman, assembled the convention visitors from overseas, numbering more than 30, giving an international aspect to the affair.

Testing Motor Generator Systems

(Continued from page 17)

connection between the two windings which are supposed to be electrically separate.

"That is where we come to using the voltmeter to advantage, for with battery current it is capable of detecting even a slight leakage (Fig. 2) which might be causing trouble in the machine. With the two test points touching, the meter will read battery voltage and when connected as shown it should read zero. A slight reading would show a leakage which would probably develop into a definite short sooner or later. In similar fashion the field coil should be tested to see that there is no circuit connection between the starter and generator windings (Fig. 3). Here the use of 110 volts with a lamp is illustrated but the voltmeter could also be used. If a meter is not available the 110 volt test could be applied to the armature test (Fig. 2)."

EDITORIAL

Accessories to Sell

Shock-Absorbers

CONCRETE highways throughout the United States have awakened the motoring public to a new enjoyment of comfortable automobile riding. The long smooth stretches where cars may glide mile after mile with scarcely a jolt have revealed the true delight of motoring.

But unfortunately it is not possible for the driver to remain always on these smooth surfaced roads. There are crossings to be made, there are broken places in the pavement that have not been repaired, there are side roads not yet improved but leading to places of desire, and there are the city streets, many of them paved years ago and now in a state of decay rivaling the shell torn roads of France. And so with his balloon tires and flexible springs the motorists still finds the going very bad in spots and he resents it, particularly because he has tasted the joy of the smooth highway.

Unless the car is equipped with good shock absorbers these uneven pavements that are inevitably encountered are likely to do it damage. We have become accustomed to a higher rate of speed and there is a tendency to drive too rapidly over the rough places. Sometimes the driver does not realize the roughness of the road until his head hits the top of the car. The tires are subjected to damaging treatment, the chassis is twisted and warped and the body of the car is strained.

A good set of shock absorbers, kept properly adjusted, will more than repay the purchase price in the comfort of passengers and the savings to the car.

What better sales argument could the dealer ask?

A Good List Is the Thing

ASPEAKER addressing a trade gathering expressed the opinion that salesmen frequently make too many calls on the same prospective buyers. Succinctly, his point was that the element of lost time in numerous calls is an important factor that the salesman often overlooks.

It would be impossible to lay down a rule as to the number of times a prospect should be seen by the salesman. Judgment of the particular case must dictate. Ordinarily, the prospect who can not be sold after three or four efforts becomes less important on the salesman's list, if he maintains a real list, than others he could just as easily see.

The number of times that a tough customer should be seen, therefore, will depend largely upon the value of the prospect list as a whole, which means that by keeping up a live prospect file there will be little necessity of wasting much time on these uncertain cases.

If the tough customer happens to be the best appearing bet in the files, which might be the case if list building is neglected—then by all means pay him another visit, and still another one if, later, nothing better is in sight.

The prospect who the salesman always should see first, however, is the one who seems to offer what apparently is the best and most certain opportunity. Other prospects should come later. That is all elementary enough and in that plan the tough customer's case should be considered.

Motor Vehicle Service Parts

CERTAIN parts of motor vehicles are subject to such wear that they are likely to require replacement. This is especially true if they are not correctly lubricated. Then there are accidents and breakages making necessary the installation of new parts. It frequently happens that by the installation of a few new parts an automobile is returned to serviceable duty for many miles. In the servicing of automobiles it is frequently found that it is better and cheaper to install new parts than to attempt to recondition or readjust the old parts.

And so the business of supplying motor vehicles with service parts for renewal purposes has grown with amazing rapidity. It has reached tremendous proportions and is still growing.

Marking the growth of this business is the second annual Standard Parts Show which will be held in Chicago next week. About 100 manufacturers of parts for motor vehicles will display their products and hundreds of men engaged in the distribution and installation of those parts will study the exhibits critically and comparatively. And again a particular branch of the automotive industry will be given a new stimulus.

November 11

EIGHT years ago peace came to our country after successful participation in the greatest war that has ever involved the United States. The unprecedented prosperity that has come to the United States since that time is remarkable. In the space of these few years we have seen the motor vehicle industry grow to be the largest single industry in the country. We have seen radio get its start as an industry and develop to gigantic proportions. We have seen highway construction carried on in a volume that is staggering. Actively engaged in these great peace time enterprises are hundreds of thousands of men who wore their country's uniform in the days of war and carried its principles to the countries of Europe.

It is not unreasonable to believe that the rapid business progress of the last few years is due somewhat to the sacrifices of the men who participated in the war—those who gave their lives, those who suffered injury, and those who stood ready to give all but were spared for future work.

Armistice day should remind us not only of the blessings of peace and a prosperous industry, but also of the sacrifices of men who made possible this enjoyment.

FIGURES SHOW GROWTH OF

Production Mounts as Manufacturers Decrease

Factory Turnout Makes a Gain of 49.9 Per Cent in 1925 Over 1923

WASHINGTON, Nov. 8.—Notwithstanding a decrease of 36.3 per cent in the number of concerns manufacturing automobile bodies and parts there has been an increase of 49.2 per cent in the products of such concerns comparing the year of 1925 with that of 1923, according to figures announced here by the Department of Commerce in its biennial census of motor vehicle body and parts manufacturers.

The figures show that in 1923 the reported products of 2,120 concerns engaged primarily in the manufacture of vehicle bodies and parts produced \$1,013,112,000, compared with \$1,511,976,000 produced by 1,350 manufacturing concerns in 1925. The principal items entering into the total for 1925 include: closed passenger car bodies, \$364,761,000; open passenger car bodies, \$42,376,000; truck bodies, \$35,573,000; bus bodies, \$13,712,000; all other bodies, \$6,309,000; transmission, differential, timers, etc., \$46,971,000; steering gears, \$11,950,000; frames, assembled and unassembled, \$36,535,000; wheels, \$67,451,000; radiators, \$41,447,000; axles, \$68,980,000; bumpers, \$18,634,000; shock absorbers, \$11,748,000; windshields, \$11,454,000, and rims \$17,762,000. No comparative figures for these items are available for 1923, the last census year.

New York led all other states in the geographical location of the industry with 170 manufacturing concerns. Others, in order, were: 145 in Ohio, 135 in Illinois, 131 in California, 128 in Michigan, 103 in Pennsylvania, 78 in Indiana, 66 in Massachusetts, 52 in New Jersey, 39 in Missouri, 38 in Wisconsin, 28 in Connecticut, 23 in Minnesota, 23 in Texas, 20 in Iowa, 20 in Washington, the remaining being scattered.

The figures cited above do not include products manufactured by makers who produced completed cars, but only those engaged in the manufacture of replacement or for assembly into complete motor cars in other plants.

Hassler Sells Plant

INDIANAPOLIS, Nov. 6.—Announcement is made that the Robt. H. Hassler, Inc., shock absorber manufacturing company, and its large plant here have been sold to Guy Lemmon, former vice-president of the concern, and a group of New York and Chicago financiers. Negotiations are said to have reached a stage where completion

of the deal is but a matter of minor details.

Expansion of the business with an attendant increase in production is said to be assured by the new owners. A large amount of new capital will be put into the business.

Robert H. Hassler, who has been the sole owner, came to Indianapolis from New York to complete negotiations but has made no announcement of his plans. Mr. Hassler has spent much time away from Indianapolis in recent years and is understood to have large real estate holdings in Florida and in the East. The present plant is modern and has about 66,000 feet of space, with heat treating plants, well equipped research and development laboratories, and a large executive building.

Mr. Lemmon, who it is understood will be president of the new concern, says that there will be no changes in the executive personnel.

New Chrysler for Export

DETROIT, Nov. 6.—A special seven passenger phaeton mounted on the Imperial "80" chassis and developed exclusively for the export market is now in production by the Chrysler Corp. This model lists at \$2695, f.o.b., Detroit. While embodying the characteristics of the domestic five passenger phaeton the new export model is provided with a skeleton top enabling the latter to be folded down into a minimum amount of space.

Nash Setting New Record

KENOSHA, Wis., Nov. 6.—Nash sales and production in October ran 43 per cent ahead of the biggest previous October in the company's history, according to a factory announcement. E. H. McCarty, general sales manager of the Nash Motor Company, says during the 10 months this year Nash marketed 125,441 cars, compared with 84,708 for the same period in 1925, which was a record year. This makes the business increase so far this year amount to 46.3 per cent.

Rickenbacker in Receivership

DETROIT, Nov. 6.—In a friendly action brought in Federal court, this week, by the Columbia Axle Company of Cleveland, the Security Trust Company and B. F. Everitt, president, were appointed receivers of the Rickenbacker Motor Company to "reserve and conserve the assets of the company."

Mr. Everitt, in an interview said the plan would afford the company the opportunity to go right into production and issued a statement in which he expressed his confidence that the receivership will be of short duration.

"Our entire liabilities are less than \$1,500,000 and our assets are close to \$7,000,000. This action will give us the necessary funds to operate our plant and build and deliver cars in quantities at once."

"In justice to the Columbia Axle Co., I want to make one thing perfectly plain and that is that this proceeding was instituted at our request in order to have the receivership in the federal courts and not in the Michigan state courts. They, the Columbia Axle Co., were extremely reluctant to consent to the use of their name and finally agreed only because of our insistence and that it would be a friendly act and to the best interest of our creditors and stockholders."

Studebaker Profits

SOUTH BEND, Ind., Nov. 6.—Report of Studebaker Corp. for quarter ended Sept. 30, 1926, shows net profit of \$3,068,254 after depreciation, federal taxes, etc., equivalent after seven per cent preferred dividend requirements to \$1.56 a share earned on 1,875,000 no par shares of common stock. This compares with \$4,706,940, or \$2.43 a share, in the preceding quarter and \$5,035,177, or \$2.61 a share, in third quarter of 1925. Net profit for first nine months of 1926 totaled \$11,804,125 after the above charges equal to \$6.08 a share on common against \$15,157,226, or \$7.85 a share, in same nine months of previous year.

New Models and Price Changes in MOTOR AGE Tables Nov. 11th

Make	Model	Body Style	Old Price	New Price
Auburn	6	Roadster	New Model	\$1095
Auburn	6	Touring	New Model
Auburn	6	Brougham	New Model	1195
Auburn	6	Sedan	New Model	1295
Auburn	6	Wanderer Sedan	New Model	1345
Auburn	8-77	Roadster	New Model	1395
Auburn	8-77	Touring	New Model
Auburn	8-77	Brougham	New Model	1495
Auburn	8-77	Sedan	New Model	1695
Auburn	8-77	Wanderer Sedan	New Model	1745
Buick	128	Coupe	New Model	1925
Essex	Six	Sedan 4d.	New Model	795
Velie	50	Sedan	New Model	1045

BODIES AND PARTS OUTPUT

Packard Distributes Bonus

DETROIT, Nov. 6.—The Packard Motor Car Co., closing its most successful year, has distributed a generous cash bonus among employes following a custom pursued for years of distributing rewards for service during prosperous periods. Size of the bonus depends on length of service.

Ten year men received \$100. During the year, three men, Edward J. Jones, Harry Pearce and Grant Winfield, completed 25 years of unbroken employment with Packard and to each was awarded a bonus of \$250.

With the awards the Packard Senior League announced that privileges of the league have been extended to employes having from 5 to 10 years service. Membership in the league had previously been limited to 10 year men. Employes with five years service are admitted to the league as junior members.

At a meeting to be held Dec. 20, new members will be taken. On this occasion, 116 persons who, during the past year, have completed 10 years of service will be admitted as senior members. President Alvan Macauley will present each with a gold watch.

The Packard Aid Association maintains more than \$16,000,000 insurance for employes. This association also provides sick and accident benefits.

5 Wire Wheels for Fordor

DETROIT, Nov. 8.—Ford Fordor sedans now are available equipped with a set of five black, drop-center wire wheels at no additional cost. For more than a year wire wheels developed by the Ford Motor Co. have been offered in a variety of colors at extra cost. According to factory instructions wire wheels finished in black only are the only color type offered with the Fordor model.

G. M. Head Reports Earnings

DETROIT, Nov. 8.—The unusual business enjoyed by General Motors Corp. during the first three-quarters of the year and the excellent financial condition of the corporation is reflected in a statement issued to stockholders, today, by Alfred P. Sloan, Jr., president.

According to Mr. Sloan, earnings of the corporation for the first nine months of 1926 not only have exceeded any other previous nine months, but also have been greater than the earnings of any previous calendar year. The period has also seen the sale of motor cars to dealers and the dealers' sales to users exceeding any previous year.

Net earnings, including equities in subsidiary companies, total \$149,317,553, compared with \$80,921,018 for the same period in 1925. Deducting \$5,733,325 for dividends on the senior securities, there remains \$143,584,228 applicable to common stock, which is equivalent to

\$17.77 a share compared with \$9.71 per share for the corresponding period of 1925, after making allowance for the difference in the number of shares outstanding.

Mr. Sloan recalls that on June 30, 1926, the 40 per cent minority interest in the Fisher Body Corp. was acquired, and that in September a 50 per cent stock dividend was paid. The earnings per share are, therefore, calculated on the basis of 8,700,000 shares outstanding subsequent to June 30, and prior to June 30 on the basis of 7,742,399 shares of stock, or the equivalent of the 5,161,599 shares then outstanding after giving effect to the 50 per cent stock dividend.

Net earnings of the corporation for the third quarter, including the corporation's equity in subsidiary companies, were \$56,031,879, compared with \$30,557,919 for the corresponding period of 1925. After deducting \$1,911,582 on account of dividends on senior securities, there remains \$54,120,297 applicable to common stock. This is equivalent to \$6.22 per share on the common, which compares with \$3.70 per share for the same period in 1925, after making allowance for the difference in the number of shares outstanding on account of the stock dividend. Earnings for the third quarter exceeded those of any previous third quarter.

The balance sheet as of Sept. 30, 1926, shows that cash and marketable securities were \$169,223,579.

For the nine months ended Sept. 30, sales to dealers aggregated 996,321 cars, compared with 612,047 in 1925, an increase of 63 per cent. For the same period retail sales by dealers to users were 962,295 cars, compared with 624,389 in 1925, an increase of 54 per cent.

Complete Show Assignments

NEW YORK, Nov. 6.—The Motor and Accessory Manufacturers Association, which cooperates with the National Automobile Chamber of Commerce in arrangements for the national automobile shows at New York and Chicago, has completed allotments to manufacturers of motors, bodies, parts, accessories and garage equipment.

The M. & A. M. A. exhibits will include a wide range of automotive products. Exhibits in the service equipment sections at New York and Chicago will be in operation to demonstrate the uses of the machinery and tools. These sections will be open only to the trade during the early part of each day. The public will be admitted during the late afternoon and evening.

Extra Timken Dividend

CANTON, Nov. 6.—Timken Roller Bearing Co. declared an extra dividend of 25 cents in addition to the regular quarterly dividend of \$1 on the common, both payable Dec. 4 to stock of record Nov. 18.

Retail Sales Irregular

NEW YORK, Nov. 10.—With a majority of the automotive plants on a four or five day week basis, the industry is marking time, with interest concentrated on the forthcoming national shows and the opening of the 1927 season. Dealers in most lines are comfortably stocked with new cars, and production for at least two months will be almost entirely to meet current market requirements.

Sales are somewhat irregular, and are below the level of a year ago, but this condition is readily explained by the slowness of business in the south and middle west. The decline has not attained the proportions of a slump, and the men in the industry are confident that the locally adverse influences will be overcome in the early months of next year. Sentiment on the whole is cheerful.

With car and truck production in October estimated at over 368,000 units, the total for the year to date has been brought to over 4,000,000 vehicles, against 4,336,000 for the entire year 1925, which marked a new record for the industry. There is now little doubt that the 1926 total will be over 4,500,000 cars and trucks.

Adair Back at Desk

NEW YORK, Nov. 6.—Neal G. Adair, manager of the show and education departments of the Motor and Accessory Manufacturers Association, is back at his desk after undergoing an operation for appendicitis recently.

Gala Day for Plant Opening

DETROIT, Nov. 5.—When the Delco-Remy corporation opens its new plant No. 6 at Anderson, Ind., Nov. 6, the affair will take on the air of a civic holiday with the 5,700 Delco-Remy employes and the entire population of Anderson and the country-side participating.

A party of 60 officials, employes and guests from Detroit, and headed by G. B. Stone, vice president and sales manager, will go to Anderson aboard three special Pullmans.

The Sells-Floto circus has been chartered by the company and will make as many free performances under the unique "big top" afforded by the new plant, as may be required to accommodate the throng. It is estimated that fully 30,000 persons will attend.

The building, the second large structure to be added to the Delco-Remy properties at Anderson since the first of the year is 241 feet by 560 feet, and, besides providing ample space for the circus will also afford means of displaying 75 makes of Delco-Remy equipped automobiles, the showing of the Delco-Remy line, and a large space in which a dance will be held. The building adds potential employment space for 1,200 persons.

U. S. Race Records to Be Recognized in Europe

Agreement Between A. A. A. and A. C. A. Ratified by International Body

PARIS, Oct. 29.—(By Mail)—American automobile racing records have secured world recognition and world-wide uniformity of competition and racing rules will be secured as the result of an agreement between the Automobile Club of America and the American Automobile Association, ratified by the International Association of Recognized Automobile Clubs, at its annual gathering in this city.

Up to the present the Automobile Club of America alone has had recognition in the International Association of Recognized Automobile Clubs, but possessing no control over racing in the United States, American speed records were not officially recognized in Europe and generally were accepted by the public with a certain amount of suspicion.

Among the clauses of the agreement between the A. A. A. and the A. C. A., the club recognizes that the A. A. A. is the sole representative for racing in the United States and the association accepts the club as its sole representative in Europe for American racing matters.

The International Racing Board decided that major events for 1927 shall be open to cars of 91½ in. piston displacement, superchargers admitted, minimum weight 1543 lb., single seater bodies, with a minimum width of 31 in. on a height of 9.8 in. Up to the present Europe has insisted on two seats side by side, with only one man aboard, but the concession of one seat has been made in order to permit American cars with widened bodies to compete in European races.

Major racing events fixed by the International Racing Board for 1927 are: Indianapolis, May 30; French Grand Prix, July 3; Spanish Grand Prix, July 31; Italian Grand Prix, Sept. 4; British Grand Prix, Oct. 1. Organization of the world's championship for 1927 has been entrusted to Italy.

No New G. M. Export Models

NEW YORK, Nov. 6.—General Motors Corporation's foreign business is making satisfactory progress and next year should show an increase of 20 per cent over this year, Alfred P. Sloan, president of the corporation said when he arrived here aboard the Homeric, in company with a number of other General Motors executives.

"We intend to push our export business all we can," said Mr. Sloan, "and will bring out no new models for export use because we realize that our big field is domestic business. Only about 12 per cent of our total business is export."

Buick Plant Is Stilled in Homage to Basset

FLINT, Nov. 6.—Funeral services for Harry H. Bassett, president and general manager of the Buick Motor Company and vice-president and director of General Motors Corp., who died in Paris, France, Oct. 17, will be held from his late residence here Sunday afternoon, Nov. 7. Rev. Dr. John Dysart, rector of St. Paul's Episcopal Church will officiate.

Arrangements for the services were completed following radio communication with Mrs. Bassett, who, with a party of friends is accompanying the body back to the United States. The body will be interred in the A. G. Bishop mausoleum pending erection of a private mausoleum. Services Sunday, due to the limited accommodations of the residence, will be private for the family and the late executive's business associates.

Every wheel in the mammoth Buick factories were stopped, Thursday night, and will remain silent until next Monday out of respect to Buick's late leader who has directed the affairs of the company during the most prosperous period of its history.

Flags on the factory and other General Motors plants in various cities fluttered at half mast, while flags on all public buildings in Flint were also placed at half-mast out of respect to Mr. Bassett.

Active pall bearers are from the Buick organization and include C. B. Durham, works manager; Harvey J. Mallory, vice-president and comptroller; E. T. Strong, sales manager; G. G. Allen, purchasing agent; E. A. DeWaters, chief engineer; F. A. Bower, assistant chief engineer; C. W. Churchill, director of sales, and Robert Longway.

Car and Truck Exports Pick Up in September

Total Well Ahead of August and Also Above Ninth Month in 1925

WASHINGTON, Nov. 8.—Exports of passenger cars and trucks from the United States during September, 1926, showed substantial increases both over the preceding month and over September, 1925, indicating improved conditions in many foreign markets, according to revised figures compiled by the Automotive Division, Department of Commerce.

Exports of passenger cars and trucks from the United States totaled 27,001 during September, against 20,273 in August and 22,814 in September, 1925. Canadian shipments rose from 3,045 during August, 1926, to 6,471 in September as compared with 5,547 in September, 1925.

Production of passenger cars and trucks in the United States totaled 397,123, the revised figures for September, 1926, show, against 425,626 in August. The September, 1926, production, however, represented an increase of 75,266 units over September, 1925.

Rickenbacker Is Chairman

WASHINGTON, Nov. 6.—Capt. E. V. ("Eddie") Rickenbacker, World War flying "ace" and one of the country's most famous racing drivers, has been appointed chairman of the new Contest Board of the American Automobile Association, according to an announcement by Thomas P. Henry, president of the A. A. A.

Resolutions by N. A. C. C. Board Pays Fine Tribute to Harry H. Bassett

In the passing of Harry H. Bassett, the automobile industry has lost one of its ablest leaders.

Working up through the ranks of business to the head of one of the leading companies in the industry, his life has been an inspiration to all in the business from the lowliest to those in the highest executive places.

His vision included the larger aspects of the industry as well as its immediate problems.

His participation in the building of the General Motors Institute of Technology was typical of his concern in the scientific problems of the industry.

His leadership of the Industrial Mutual Association of Flint indicated his understanding of the problems and interests of the workers.

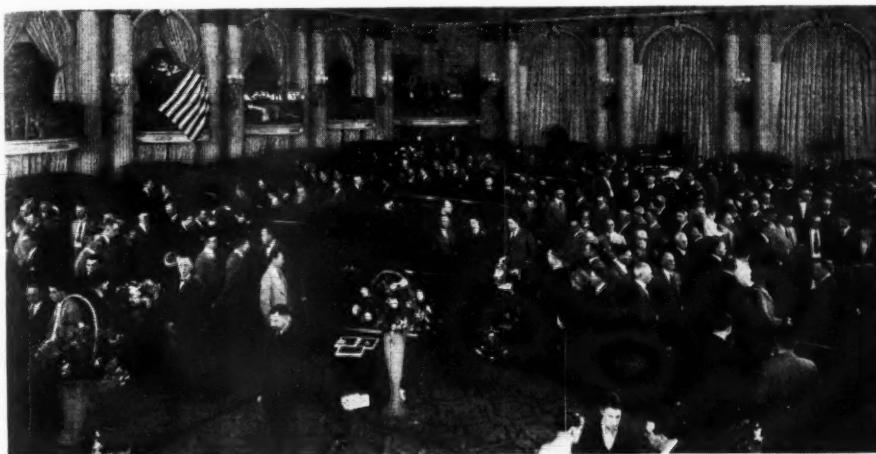
His activity in the cooperative efforts of the National Automobile Chamber of Commerce was an example of his many contributions to the progress of the industry as a whole.

His character as a husband and as a father was an inspiration to all that knew him.

The directors of the National Automobile Chamber of Commerce render deep tribute to his high character and to his ability in the automobile industry and extend their heartfelt sympathy to his family and associates.

(The above resolution was adopted by the board of directors of the National Automobile Chamber of Commerce at its meeting on November 4, 1926.)

Glimpse of the 1926 Closed Car Salon at the Biltmore, Los Angeles



This brilliant event was held Oct. 19-22, inclusive, under auspices of the Los Angeles Motor Car Dealers' Association. They know how to stage shows in Los Angeles and the closed car salon was put on in captivating style. More important, it was a good "business" effort

Rains Hamper Sales

COLUMBUS, O., Nov. 8.—Following a very active month of September, sales of new cars in the month of October were not so large as in the preceding month by about 15 per cent. While industrial conditions were not the best, still the falling off is attributed to a large extent to the constant rains which fell during the first three weeks of the month.

Compared with October of last year sales in all classes of cars were from 10 to 15 per cent better. Thus the month, which not a good one compared with August and September was satisfactory when sales records of last year are taken into consideration.

Sales of used cars on the other hand showed a marked falling off and most of the dealers and distributors have rather heavy stocks of used automobiles.

Reports show that the farmer trade is in better shape and many dealers and distributors received a better volume from the rural sections surrounding Columbus. Farmers are in better shape financially.

Vote Wider-Roads Bonds

CHICAGO, Nov. 6.—Cook County, including the city of Chicago, voted a \$15,000,000 bond issue in Tuesday's election for the purpose of widening the highways leading into Chicago and building new 40 ft. highways. Work will be started immediately on an extensive construction program.

Reorganize Distributorship

DETROIT, Nov. 5.—Following the recent retirement of Byron C. Foy as vice-president and treasurer of the John H. Thompson Co., Chrysler distributors for Southeastern Michigan, two members of the organization have

been promoted. John F. Evans, general sales manager, now has charge of the organization's entire sales activity, and C. G. Sharps, former secretary, is made assistant general manager. Each has acquired a financial interest in the company since Mr. Foy's retirement. With the reorganization, Richard Carhartt, former distributor of cars in Oklahoma and Lee Force, well known in Detroit, have been named divisional sales managers.

Mr. Foy has gone to New York where he has acquired an interest in the New York Chrysler distributing organization, the name of which is being changed from the Colt-Stewart Co., to Colt, Stewart & Foy, Inc.

A. E. A. Distributes Signs

CHICAGO, Nov. 6.—The Automotive Equipment Association is now furnishing its members with large three-color transfer signs to be placed on their glass doors or windows. This sign is a reproduction of the Automotive Equipment Association's emblem and bears the word "member" in a conspicuous place.

Three Boston Salons

BOSTON, Nov. 8.—Salons have been interesting Bostonians here the past couple of weeks. Cadillac Automobile Company of Boston staged two, one for an entire week at the salesrooms, and the other for three days at the Copley Plaza. Both were well attended and the results were said to be satisfactory.

Then the Rolls Royce Company opened its annual Boston Salon in the Copley Plaza with a display of 14 different models. This Salon also attracted many visitors and Manager Roy Hiltz, of the Boston branch, stated that the orders and prospects fully warranted the costs of the event.

A.L.A. Makes Progress In Legislative Efforts

Get Results in Move to Check Undue Restrictions Affecting Equipment

CHICAGO, Nov. 6.—At a meeting of the Automotive Lighting Association held at the Drake Hotel here Thursday steps were taken to do further work in sponsoring uniform laws in the various states so that undue restrictions will not be placed on the manufacture, sale and use of lighting equipment.

A report of the legislative committee of the association indicates that good work already has been done. Co-operation with Committee A of Secretary Hoover's National Conference on Street and Highway Safety has resulted in the inclusion in the Uniform Vehicle Code of most of the lighting provisions advocated by the association.

Automotive dealers in various states have doubtless felt the effect of questionable lighting legislation in restricting the sale of lighting equipment and will appreciate the extent to which uniform state laws would assist by making it possible for automobile owners to buy any item of lighting equipment without having the feeling that in touring they might be breaking the law of a neighboring state by using such equipment.

The efforts of the Automotive Lighting Association contemplate further work to promote the adoption of the Uniform Vehicle Code, for a majority of the states will take up legislation along these lines in the near future. The effect of good equipment in reducing accidents was pointed out in the case of the state of Texas where a law requiring a pre-registration check of lighting equipment was followed by a reduction in night accidents ranging from 50 per cent to as much as 80 per cent in some of the more populous communities.

A report was also presented by the Standardization committee which is working to reduce the number of sizes and to establish some uniformity in lamp construction. One of the details now apparently established is the continued use of red glass for the tail light. Some agitation has indicated a demand for the use of yellow, but red has been adopted in the Uniform Vehicle Code.

Officers for the ensuing year were elected. H. J. Monson of the Guide Motor Lamp Co. of Cleveland was chosen president; J. H. Cattell of the Warner Patterson Co., Chicago, was made vice president; while C. Sklarek of the Lorraine Corporation, Chicago, becomes secretary and treasurer.

Distribute Marmon

SEATTLE, Wash., Nov. 6.—R. M. Mooney, Inc., has been appointed distributor for Marmon in Seattle and western Washington.

Lively Program Ready For N.A.F.C. Convention

Annual Meeting to Be Held at Palmer House, Chicago, Nov. 15-16

CHICAGO, Nov. 6.—Completion of the program for the two-day conference of the National Association of Finance Companies to be held Nov. 15-16 at the Palmer House, Chicago, is announced by A. H. Rosenberg, of the Motor Car Securities Corporation and chairman of the program committee. The program promises an interesting bill of addresses and discussions.

Following registration beginning at 9 o'clock Monday morning Nov. 15 the conference will be called to order by A. E. Brooker, of St. Louis, president of the association. After selecting a chairman and naming committees on resolutions Harry A. Wheeler, president of the Union Trust Co., Chicago, will deliver an address on "A Banker's View of Automotive Financing." Mr. Wheeler will be followed by Alfred Reeves, general manager of the National Automobile Chamber of Commerce, who is to speak on "The Automobile Outlook," while C. A. Vane, general manager of the National Automobile Dealers Association, in the last speech of the morning will tell about "The Dealer's Position in Automobile Financing."

After luncheon at 1:30 the association will hear Milan V. Ayres, Chicago economist and analyst, on "Instalment Selling and Its Financing," the resolutions committee will report and there will be an open forum. A banquet will be held at 7 p. m., completing the first day's activities.

Tuesday's program will begin at 10 a. m. with a talk by John W. Creekmur, Chicago counsel of the N. A. F. C., on "Legal Points of Interest to Finance Companies," while the other set address of the day will be by W. S. Mays, New York, on "Insuring and Bonding Practices in Relation to Automobile Financing." The entire session will be liberally punctuated with discussions.

At 2 p. m. there will be a membership meeting when reports will be heard, new directors elected and a new board organized. C. C. Hanch, general manager of the N. A. F. C., says an excellent attendance is indicated.

Haresnape Resigns

WASHINGTON, D. C., Nov. 6.—Announcement is made that Val Haresnape has tendered his resignation as secretary of the Contest Board of the American Automobile Association, effective Dec. 31, 1926.

Mr. Haresnape became secretary of the Contest Board early this year and since that time considerable progress has been made in reorganizing the

Board and establishing better conditions governing sanctioned automobile racing in the United States. Ernest N. Smith, general manager of the A. A. A., states that consideration is being given to obtaining a successor to Mr. Haresnape as soon as possible.

Business Conditions

Department of Commerce Gives View of Current Situation

The dollar volume of trade during the last week of October, as seen from check payments, was higher than last year, while for the entire month a similar comparison was registered, according to the weekly statement of the Department of Commerce. The distribution of goods, as seen from figures on carloadings, was larger during the third week, as well as during the first three weeks of October, than during the corresponding periods of 1925. The value of new building contracts awarded during the last week of the month was higher than either the previous week or the same week of last year, but for the entire month building contracts awarded were smaller than a year ago, due to smaller contracts in the southeastern section of the country.

The production of bituminous coal during the third week was higher than in either the previous week or the same week of last year, while the output of beehive coke was smaller than in either comparative period. Lumber production also showed a decline from both the previous week and the third week of October of the previous year. The output of petroleum was running higher than a year ago.

Wholesale prices again strengthened as compared with the third week, and for the last week of the month were higher than at any time since mid-summer. Prices, however, were well below last year. Loans and discounts of Federal reserve member banks again declined but were higher than last year. Interest rates on call money were higher than in either the previous week or last year while time-money rates showed no change from last year but were lower than in the previous week. Business failures, although less than in the previous week, were more numerous than a year ago.

Plan N. S. P. A. Division

CHICAGO, Nov. 4.—The first steps toward the organization of a Chicago regional division of the National Standard Parts Association were taken at a meeting held at the Hotel Sherman last night. C. M. Burgess of Burgess Norton Mfg. Co. was elected temporary chairman and committees on by-laws, resolutions and nominations were appointed. The next meeting will be held at Hotel Sherman, Monday, November 15, at which time it is expected a permanent organization will be formed.

Freight Rate Decision Against Trades Group

Discrimination Complaint of Mid-West Petitioners Is Overruled by I. C. C.

WASHINGTON, Nov. 8.—The Interstate Commerce Commission has dismissed complaint of automobile dealers and agents in Iowa and Nebraska as to discrimination against railroad freight rates on motor trucks shipped from Detroit, Flint, Pontiac and Cleveland and points in Indiana.

Contention of the distributors in Sioux City, Lincoln, Norfolk and other Western cities in Nebraska and Iowa was that the second class rates charged were illegal and inapplicable to the extent that they exceeded the fourth-class rates from the points of origin to Mississippi river crossings. The decision of the I. C. C. admitted an ambiguity in the wording of the classifications but held that "none of the complainants were misled thereby" and denied the relief.

Complainants were the General Motors Truck Company of Kansas City, Cline and Bird Truck Company, Arnold Automobile Company, and Iowa White Motor Company.

Kirby Will Build

CHAMPAIGN, Ill., Nov. 6.—The E. V. Kirby company, in the Flat Iron building, Urbana, has announced plans for a one-story 132 feet square, sales and garage building at University avenue and Third street to cost \$75,000. Work will start at once.

Packard Zone Meeting

SEATTLE, Wash., Nov. 6.—Officials of the Packard Motor Car Company held a zone meeting of Packard dealers of Washington, Idaho, Calgary, Alberta, Vancouver, B. C. and Victoria, B. C., at the Olympic hotel.

The meeting dwelled mainly on sales promotion and the servicing of Packard cars.

Exhibitors at the 1926 N. S. P. A. Show

(Continued from page 24)

BURGESS NORTON MFG. CO., Geneva, Ill. Piston pins, bushings. Booth No. 118.

DALL MOTOR PARTS CO., Cleveland, O. Pistons and finishing machines. Booth Nos. 119-120.

KEYSTONE REAMER CO., Millersburg, Pa. Tools. Booth No. 121.

THOMPSON PRODUCTS CO., Cleveland, O. Valves, bolts, bushings and cranks. Booth Nos. 122-123.

WILKENING MFG CO., Philadelphia, Pa. Piston rings. Booth No. 124.

KANT SKORE PISTON CO., Cincinnati, O. Pistons. Booth No. 125.

A Roof Show Which Attracted Many Texans Interested in Automobiles



Where the Munger Auto Company, Dallas Cadillac distributors, staged a display of 50 models recently.

When the Munger Auto Company, Dallas, Tex., Cadillac distributors in North and West Texas, decided to stage a special Cadillac show the top of the big Munger building was selected as the place for the display. Fifty Cadillac models were exhibited on the roof of the building, while beneath the show-floor were five floors and a basement filled with Cadillacs and equipments and parts for Cadillac service. Cadillac dealers, owners and prospective owners and thousands of other persons attended the show. They passed through displays of Cadillacs on the ground floor to reach the elevators which landed them at "the show." The picture shows the arrangement of models on the roof.

Timken Personnel Changes

CANTON, O., Nov. 6.—Yale D. Hills has been appointed branch manager at Seattle for the Timken Roller Bearing Service and Sales Co. Mr. Hills formerly was branch manager at Portland but since closing of that branch has been located in the Canton office.

R. H. Cross, who had charge of the Seattle branch has been made assistant to G. C. McMullen, district manager of sales, Industrial Division. He will continue to make Seattle his headquarters.

E. N. Beisheim, formerly of the Bock Bearing Co., Toledo, has been appointed assistant to the general manager of the Timken Roller Bearing Service and Sales Co. at Canton.

S. C. Partridge has been placed in charge of the Buffalo office, Industrial Division, of the Timken Roller Bearing Co., taking the place of Lee Warrender, resigned.

Effective Publicity Stunt

WASHINGTON, Nov. 6.—A publicity stunt which went over big was staged here by the Wardman Motors Company, distributors of the new Whippet. A six day continuous run was made through the congested traffic section of the city. The car was conspicuously decorated and painted. The driver propelled his car at all times so as to be in the part of the city where the largest number of people were passing.

The novelty of the stunt was such that the daily local press gave it a great amount of publicity. At the conclusion of the trip a check of the gasoline used during the 144-hour test,

showed a total of 85 gallons consumed, or an average of 27.76 miles per gallon, two quarts of oil being used and a total of 2,360 miles registered.

Leads Chevrolet Salesmen

BIRMINGHAM, Nov. 6.—E. C. Cleveland, Chevrolet salesman in the Birmingham district, was the leader in number of sales for the whole country, for the month of September, according to a recent announcement by the Chevrolet Company. Mr. Cleveland is a salesman for the Steel City Motor Company, dealers in Chevrolets for Ensley, a suburb of Birmingham.

More Eldridge Records

PARIS, Oct. 25.—(By Mail)—Driving a straight eight 91½ inch supercharged Miller, on Montlhery track, E. A. D. Eldridge has taken the world's 5-mile and 10-kilometers records away from Breton handling a 340 cubic inch Panhard & Levassor Knight type. The Englishman on the American car covered the five miles in 2 min. 9.66 sec., which is at an average of 138.8 miles an hour and clipped .21 sec. off the French car's time. The 10 kilometers run was made in 2 min. 41.25 sec., also at an average of 138.8 miles an hour and bettered the Panhard & Levassor time by 24/100 sec.

Chrysler Dealers Dine

MEMPHIS, Tenn., Nov. 6.—Chrysler dealers representing four states had an interesting meeting at Hotel Peabody in Memphis recently. About 40 were present.

Vane Has Many Backers On Florida Tax Protest

Objection to Publicity Fund Scheme Voiced in Various Parts of Industry

ST. LOUIS, Nov. 8.—C. A. Vane, general manager of the N. A. D. A., has received many communications from automobile men throughout the country supporting the stand of the association in opposition to a proposal made by Robert Scales Clary, an advertising man of Jacksonville, Fla., to divert one cent per gallon of the state's four cents per gallon gasoline tax to a fund to be used for advertising the state of Florida generally.

D. S. Eddins, general sales manager of the Olds Motor Works, Lansing, Mich., not only wrote Mr. Vane a letter indorsing the stand of the N. A. D. A. but wrote to T. K. Johnson, Olds branch manager at Atlanta, Ga., calling his attention to the situation. Mr. Eddins' letter, in part, says:

"We think Mr. Vane's position is right, especially in view of the fact that from time to time in various parts of the country some man or set of men will try to saddle the automobile business with some kind of extra tax or burden and it is from this point of view that Mr. Vane is opposed to such procedure. It is his position that if money is to be raised it should be raised in the regular manner without singling out our business to bear the burden."

Norman Damon of the Highways Committee of the National Automobile Chamber of Commerce has recommended to the A. A. A. and to the N. A. C. C. that everything possible be done to prevent "any such wholesale diversion" of gasoline tax moneys as proposed in Florida.

J. H. Dean, secretary of the Orlando Automobile Dealers' Association, of Orlando, Fla., writes that his organization went on record as opposed to this method of taxation after the matter had been brought up at a meeting, and the position taken by N. A. D. A. was heartily endorsed.

From John E. Smith, Chevrolet dealer at Atlanta, Ga., comes the following: "At the last session of our Legislature a strong effort was made to increase the gasoline tax from four to five cents per gallon. The dealer Association here fought it successfully, and in our recent race for Governor the winning candidate went on record as being opposed to further increases of gasoline taxes."

"I think it well that automobile men generally should take a decided stand in regard to gasoline taxes, since it is a tax so easy to collect and up to date has been paid so cheerfully that many law makers seem to regard the gasoline tax as a legitimate prey."

Wright Manages Sales

ATLANTA, Ga., Nov. 6.—The Darnall Motor Company, Oakland and Pontiac dealers in the Atlanta district, announces appointment of L. Ralph Wright as sales manager. Mr. Wright formerly was general traveler throughout the southeast for Chevrolet and also assistant sales manager for the Flint Motor Co., of Atlanta.

IOWA DEALERS HOLD CONVENTION

DES MOINES, Ia., Nov. 6.—The automotive dealers of Iowa, gathered at Des Moines for the eighth annual convention of the Iowa Automotive Merchants Association, Oct. 28-29, indorsed some important legislation of interest to all automotive merchants and made at least one important change in the organization of the association.

At the annual meeting last year, tire and battery men suggested the

joint department was the best arrangement.

At the business meeting of the convention, the suggestions of the battery and tire group were framed into a resolution which gives the group department space in the Motor Trades Bulletin and asks that the by-laws of the association be changed so as to provide for an additional vice-president and a director at large, these to be filled by the tire and battery men. Secretary Knapp was instructed to submit a referendum to the membership, asking approval of the proposal.

Following talks by F. R. White, chief engineer of the Iowa State Highway Commission, and Glenn C. Haynes, secretary of the Iowa Good Roads Association, the convention went on record as favoring primary road control by the Highway Commission, indorsed the bond issue proposed to finance hard surfacing of principal primary roads and approved the work of the Good Roads Association.

Another legislative resolution favored the amendment of the Rental Battery Law, sponsored by the association before its passage some time ago, making the act more effective and providing for better enforcement. The present method of licensing new cars was disapproved by the dealers when they adopted a resolution asking for monthly instead of quarterly graduated license fees on new cars. Compulsory liability insurance for drivers was disapproved. Legislation was asked for, making it a penal offense to substitute inferior oils for first class or well-known brands.

C. C. Hanch, general manager of the National Association of Finance Companies, spoke to the dealers on "Motor Car Finance." In his talk he urged better co-operation between dealer and finance companies, pointing out the problems of each and how these problems could best be solved by co-operation. "Selling Maintenance" was the subject of an address given by T. H. Stambaugh, service promotion manager, Olds Motor Works. Service, its possibilities from a profit standpoint and methods of selling service, were considered by the speaker. Mail order competition and how to meet it, was analyzed by Ralph K. Wadsworth of Grant & Wadsworth. Mr. Wadsworth suggested price leaders and service as the best way to induce people to spend their money at home.

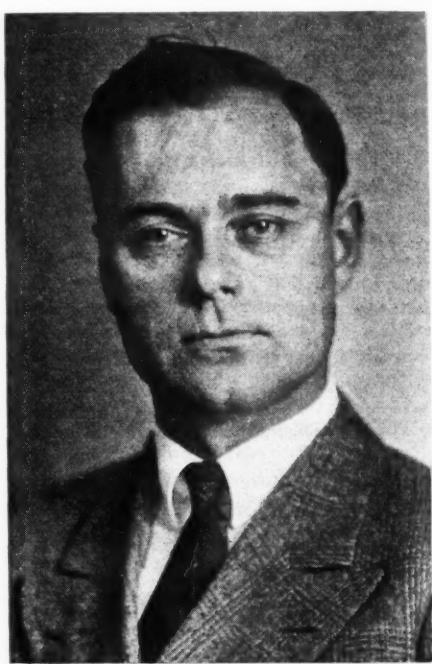
Other speakers on the program in-

cluded W. E. Wissler, general manager Herring Motor Co., Des Moines; Arthur R. Mogge, merchandising director, Automotive Equipment Association; George T. Brusch, Mason B. Hatch, Overland-Knight Co., Buffalo; G. V. Orr, Overland Motor Co., Chicago, and A. J. Knapp, secretary-manager of the association.

At the annual business meeting of the convention, the following officers were elected: President, C. A. Bowers,



C. A. Bowers, Council Bluffs, new president, Iowa Automotive Merchants' Association



E. C. Swain, Osceola, Ia., who was elected treasurer of the Iowa Automotive Merchants' Association

association might be strengthened and membership made more attractive, if departments in the association were organized for battery and tire men of the state. Following the suggestion of these members of the association, Secretary A. J. Knapp arranged this year's convention program so as to include group meetings for both battery and tire men. Following these group meetings a joint session was held, at which time it was decided that it was unnecessary to have departments for both tire and battery men, and that a

Council Bluffs; vice-president, J. J. DeJarnette, Sioux City; treasurer, E. C. Swain, Osceola.

New directors selected include the following: J. A. DeWitt, Sheldon; C. A. Nord, Creston; George Duffield, Des Moines; Chester Carmer, Centerville; H. L. Bartholomew, Keokuk; H. J. Lytle, Davenport; and F. A. Hulsebus, Harlan. Henry L. Marsh, Storm Lake, was elected to fill the vacancy caused by the resignation of Frank Lumsden. A. J. Knapp was selected for the eighth consecutive year as secretary-manager.

High Batting Salesmen

INDIANAPOLIS, Ind., Nov. 6.—Selling Ford cars to the value of \$1,000,000 in nine months is the record achieved by salesmen of the Roy Wilmett Company, 720 North Meridian Street. They include C. T. Foxworthy, sales manager; L. K. Ulrich, R. K. Blount, R. C. Williams, L. C. Larin, Robert Marson,

Charles Underwood, Louis Moore, R. N. Gauss, C. L. Summers, F. W. Waldkotter, and W. C. Sellers.

Handle Star At Madison

MADISON, Wis., Nov. 8.—The Dane County Motor Company has taken over the handling of Star cars in Madison and the surrounding territory. The

company, which was incorporated with a capital of \$25,000, is headed by the following officers: President, William Walsh; vice-president, Leo R. Emerson; secretary-treasurer, E. L. Peterson. Ground has been broken for a \$35,000 building on East Washington Avenue which it is hoped to occupy by Jan. 1. The company has built up a large associate dealer organization.

Take Optimistic View Of Cotton Situation

More Money in Sight from Staple Than Was Ex- pected, Dealers Think

DALLAS, Texas., Nov. 6.—The automobile business in Texas and parts of Louisiana and Oklahoma slowed up a little as the trade entered the eleventh month of the year, due to low cotton prices and the determination of bankers and farmers to hold one-fourth of the crop off the market. The automobile dealers believed, however, the slump in trade would be of brief duration, and expressed the opinion the business would be in high before the first of the year.

They point to the fact that Southern farmers had expected to produce 4,000,000 bales of cotton and sell it for \$85 per bale, which would mean there would be \$340,000,000 of cotton money in circulation between September 1 and January 1. Instead the farmers have produced 5,500,000 bales and are getting around \$65 per bale for it, which brings the total amount of cotton money to \$357,000,000, some \$17,000,000 more than expected.

The taking of 1,250,000 bales off the market and the stirring up the "cheap cotton scare" however, has put a damper on the buying of automobiles and practically all automotive lines right now. The rural districts in the cotton belts are not buying many cars. Trade in smaller towns in the cotton sections is slow. In other parts of the state business is about normal.

New Role for H. Shelton

ST. LOUIS, Nov. 6.—The Gardner Motor Co. has appointed H. Shelton, formerly with Chevrolet Motor Co. and Durant Motors, Inc., district sales manager of practically the entire state of Ohio and northern Indiana. Peyton C. Hough, formerly connected with distributors in Denver and Salt Lake City, has been placed in charge of the western district.

Hold Show at Austin

AUSTIN, Texas., Nov. 6.—The annual show of the Austin Automotive Trades Association closed recently after a very successful and satisfactory week. In addition to a fine display of the latest models of cars there were several equipment exhibits.

The show this year was held in connection with the State Exposition and drew crowds from all sections of central Texas.

The dealers report much enthusiasm manifested by the visitors and said a large number of sales of various makes and models were sold on the floor of the show rooms.

E. E. Young, Willys-Overland dealer,

is president of the Austin Association and took a leading part in planning the show. Mr. Young said the exhibition was a great success considering business actually done and from interest stimulated.

Films Teach Selling

MEMPHIS, Tenn., Nov. 6.—The Burt-Overland Motor Co., Memphis, has instituted a modern form of sales school. Motion picture films demonstrate how to sell cars and it is a weekly feature.

NEW Automotive Literature

GASOLINE AUTOMOBILES, by James A. Moyer. A revised edition of this book has just been published, taking into account many recent developments in the motor vehicle field such as balloon tires, improved fuels, single sleeve valve engines and the like. The author is Director of University Extension, Massachusetts Department of Education. The book is intended especially to give automobile owners an idea of the why and the how of automobile operation. Chapters are devoted to the engine, gasoline, carburetors, ignition, electric starters, clutches, transmissions and differentials, lubrication and cooling and troubles and noises. Published by the McGraw-Hill Book Co., 370 Seventh Ave., New York, N. Y. Price \$2.50.

MEASURING BRAKE RESISTANCE SCIENTIFICALLY. This 24 page booklet is a complete discussion of automobile brake testing by means of the scientific equipment manufactured by C. H. Cowbrey Machine Works. One feature is a grading table for motor vehicle brake performance from an initial speed of 20 miles per hour. In this table cars with four wheel brakes which stop between 15 and 16 ft. are given a rating of A-4, which is considered commercially perfect. If the car stops in 20 to 25 ft. with four wheel brakes, it is given a fair rating, but if it takes 25 to 30 ft. to stop, the rating is poor. A car with two wheel brakes which stops in 30 to 32 ft. is rated A-2, which is considered commercially perfect. Stopping in 40 to 42 ft. gives two wheel brake cars a fair rating but if they take 45 to 50 ft. to stop the rating is poor.

Space is given to the mathematics of brakes. The bulletin also lists the various types of dynamic brake testing equipment made by the Cowbrey Co. The bulletin is published and distributed by the Cowbrey Brake Tester Organization, Fitchburg, Mass.

WALLER AUTOMOTIVE PRODUCTS. A new catalog of the extensive line of automobile heaters made by the Waller Manufacturing Co., Waterloo, Ia.

Tobacco Makes Up Loss On Cotton in Carolinas

Demand for New Cars Easily Equals That of Same Period Last Year

CHARLOTTE, N. C., Nov. 6.—Buying in all lines of the automotive trade continued brisk late in October, although the seasonal decline in volume was irregularly accentuated by the continuing slump in the cotton market, with North Carolina trade holding far above the levels reported by South Carolina interests. The unusually high prices being paid for a large crop of tobacco produced in this state served to offset in a substantial measure the losses of the farmers incident to the decline in cotton.

A spirit of calmness and optimism generally characterizes the automotive trade in this territory, where it is realized a high degree of caution is imperative, with several important uncertain features tending to cloud the business horizon. The Carolinas, but particularly North Carolina, are in a fair financial position.

The demand for new cars, even in the face of the decline, is at least equal to what it was at this time a year ago, according to a number of reports, and somewhat conflicting reports appear to indicate that the lighter motor trucks are being sold in as great, or greater numbers than ever before.

Bigger Marmon Program

INDIANAPOLIS, Nov. 6.—Another definite step in the expansion program of the Marmon Motor Car Company has been taken by dividing the United States into three sales zones, each under the supervision of a sales manager. These zones, in turn, have been divided into nine districts so the factory in Indianapolis may be kept in direct touch with dealers and distributors throughout the entire country.

Under H. H. Brooks, general sales director, are S. A. Zweibel, Ottis Lucas and H. W. D. Brown as zone managers. R. W. Greulich, Porter Smith, H. C. Edwards, J. K. Gregory, John Tainsh, Paul Morford, L. F. Johnson, John Boe and George F. Green are the district managers. The foreign division under Frank L. Hambly also is divided into two districts with European sales in charge of W. L. Nicoll and South American business under Pablo Homs. Additional foreign districts are expected to be created within a short time.

Dutton Succeeds Veale

SEATTLE, Wash., Nov. 6.—Frank L. Dutton, for ten years with the Eldridge Buick Company, Seattle, succeeds Henry Veale as used car manager of the Willys-Overland Pacific Company, Seattle factory branch.

TRADE ASSOCIATION ACTIVITIES

550 DEALERS GATHER

Many Tradesmen Attend Rousing N. A. D. A. Meeting Held in St. Louis

ST. LOUIS, Mo., Nov. 6.—At a meeting Oct. 29 under the auspices of the St. Louis Automobile Dealers' Association, Lynn M. Shaw, assistant general manager of N. A. D. A., spoke on "Management's Guide to Profit." The meeting was held in the auditorium of the St. Louis Chamber of Commerce and about 550 dealers from the St. Louis territory of eastern Missouri and southern Illinois attended. George Weber, president of St. L. A. D. A. introduced Mr. Shaw.

This session was one of those on the program of the N. A. D. A. which is conducting 115 meetings in 45 cities throughout the country.

St. Louis automobile distributors took advantage of the opportunity to hold a number of private meetings of their own organizations.

One of these private meetings was held by the Hudson-Frampton Motor Car Co., Hudson and Essex distributors, at which it was announced that Joseph N. Kellerman, sales manager of Hudson-Frampton had been loaned to the N. A. D. A. to take part in the sales congresses.

500 Hear Kirkland

ROCHESTER, N. Y., Nov. 8.—Nearly 500 automotive dealers, salesmen and jobbers, attended the meeting held at the Chamber of Commerce here under the auspices of the Automotive Equipment Association. The meeting was sponsored by Rochester members of the association, Chapin-Owen Company, W. H. Rowerdink and Son, Kellogg Manufacturing Company, S. B. Roby Company and Thomas J. Northway, Inc.

Henry Kirkland, merchandising representative of the A. E. A., urged installation of modern shop equipment, the use of dependable service parts and the selling of service by the job rather than by the hour.

Preceding the meeting, officers of the organizations and the speakers were entertained at dinner at the Genesee Valley Club by the Kellogg Manufacturing Company.

Discuss Stock Control

NEW YORK, Nov. 6.—A discussion of stock control systems, perpetual inventories, physical inventories and merchandising of replacement parts featured the regular meeting here of the Automotive Service Association of New York.

John R. Eustis, manager of the association, said that the membership had now reached almost 500 and predicted that a limit soon would be set. Colonel Florida, president of the association, presided.

At Helm of the Memphis Dealer Association



E. C. Barwick

E. C. Barwick of the Price-Barwick Co., authorized Ford dealers in Memphis, Tenn., recently was elected president of the Memphis Automobile Dealers' Association, succeeding Harter B. Hull, who resigned this office upon moving to Baltimore. Mr. Barwick was at the helm of the eighth annual automobile show, staged during the Memphis Tri-State Fair, which all participating dealers pronounced a big success. Besides his prominence in Memphis business circles Mr. Barwick is identified with a number of club and fraternal activities.

Nine Directors Chosen

KANSAS CITY, Mo., Nov. 6.—The Kansas City Motor Car Dealers' Association held a dinner at the Kansas City Club when the nine directors of the association for the ensuing year were chosen in election. The directors, all of whom are prominent in local motor car affairs, are: W. J. Brace, Arthur Bunker, W. P. Hemphill, W. A. Rea, W. C. Howard, Estel Scott, George H. Cox, John A. Butler and R. P. Rice.

Attend Demonstration

CLEVELAND, Nov. 6.—About 75 service managers from the city's distributor and dealer organizations recently attended a valve grinding exhibition and dinner held by the Cleveland Automobile Manufacturers and Dealers Association. C. M. Hall, Cleveland manager for Black & Decker conducted the shop exhibition. This is the largest number of service men ever assembled at such a demonstration.

OAKLAND TO HOLD SHOW

Association Will Stage First Exhibit Since the One in 1924

OAKLAND, Cal., Nov. 6.—Announcement is made that the annual Oakland Automobile Show will be held here in January, with Robert W. Martland, who has managed all Oakland automobile exhibitions to date, as the manager. The 1927 show will be held under the auspices of the Oakland Motor Car Dealers' Association, of which E. A. Hamlin is president. It will be staged in the large municipal auditorium.

The San Francisco Motor Car Dealers' Association has voted unanimously to support the show on the mainland side of San Francisco Bay, and will take space in it through the Oakland dealer representatives of the San Francisco distributors. Oakland has not had an automobile show since 1924, and the 1927 exhibition will be the first in the West for the new year.

Oakland is the third largest distribution center for automobiles in California, Los Angeles being first, and San Francisco second. Under present arrangements, the main floor of the auditorium will be given over to passenger cars, while the corners will be occupied by trucks, and the sides by equipment dealers.

Explains Chevrolet Policy

ROCHESTER, N. Y., Nov. 6.—The new policy of Chevrolet Motors toward the independent garage man was explained by C. E. Estes, general manager of the Parts and Service Division of the Chevrolet Motors, to members of the Rochester Garage Owners' Association here. After an educational campaign to be conducted by garage men on the different makes of cars, members of the organization will institute the flat rate system in this city. With Mr. Estes were R. S. Clenderlin, master mechanic, Harry A. Kestler, of Pittsburgh, H. H. Russell, road instructor, and Robert Carry, local factory representative.

Martin to Preside

DALLAS, Tex., Nov. 6.—At the annual meeting of Southwest Booster Club No. 4, an organization consisting of automotive manufacturing agents, M. L. (Hap) Martin was elected president. He succeeds Frank W. Lynn. Hayden Williams was named vice-president, succeeding Joseph Pender. L. E. Berry was elected secretary, succeeding D. H. McFadden. Lou Campitt was named treasurer to succeed Milton LaDue. The Boosters announced their next meeting will be held the last Saturday in November. Directors elected were Staffer Jones, H. M. Cree, Milton LaDue and Joseph Pender, and Frank Lynn, the retiring president.

Coming Motor Events

Automobile Shows

1927 NATIONAL SHOWS

New York	Jan. 8-15
Chicago	Jan. 29-Feb. 5

Akron, O.	Feb. 5-12
Albany, N. Y.	Feb. 26-March 5
Allentown, Pa.	Feb. 28-March 5
Altoona, Pa.	June 11
Atlantic City	April 30
Baltimore, Md.	Jan. 22-29
Boston, Mass.	March 5-12
Brooklyn	Jan. 22-29
Buffalo	Jan. 15-22
Camden, N. J.	Feb. 7-12
Charlotte, N. C.	May 9
Chicago	Jan. 10-15
Chicago	Jan. 29-Feb. 5
Chicago	Nov. 8-13
Chicago	Nov. 8-13
Cincinnati	Jan. 15-22
Cleveland	Jan. 22-29
Cumberland, Md.	Jan. 31-Feb. 5
Deadwood, S. D.	Feb. 21-26
Denver, Colo.	Feb. 14-19
Detroit	Jan. 22-29
Des Moines	Feb. 14-19
Fort Wayne, Ind.	Feb. 14-19
Grand Rapids, Mich.	Jan. 17-22

Fresno, Cal.	April 28
Hartford, Conn.	Feb. 19-26
Huntingdon, W. Va.	Feb. 21-26
Indianapolis	Feb. 14-19
Kansas City, Mo.	Feb. 12-19
Los Angeles	Feb. 12-19
Los Angeles	Feb. 26-March 6
Louisville, Ky.	Feb. 14-19
Milwaukee	Jan. 15-22
Minneapolis	Feb. 5-12
Montreal, Can.	Jan. 22-29
Muskegon, Mich.	Feb. 15-19
Newark, N. J.	Jan. 15-22
New York	Nov. 28-Dec. 4
Omaha, Neb.	Feb. 21-26
Peoria, Ill.	Feb. 14-19
Philadelphia	Jan. 15-22
Providence, R. I.	Feb. 5-12
Rocky Mount, N. C.	April 4-8
Quebec, Can.	March 1-8
Rochester	Jan. 24-29
Saginaw, Mich.	March 9-12
San Bernardino, Cal.	Feb. 17-27
San Francisco	Jan. 29-Feb. 5
Scranton, Pa.	Jan. 24-29
Sheboygan, Wis.	Feb. 14-20
Sioux City, Iowa	March 3-6
Sioux Falls, S. D.	March 2-5
Springfield, Ill.	Feb. 9-12
	State Arsenal

COMING FEATURE ISSUES OF CHILTON CLASS JOURNAL PUBLICATIONS

December 10—Operation and Maintenance—Service Station Equipment Issue
December 15—Commercial Car Journal—Good Roads Issue
January 1—Automobile Trade Journal—Annual Show Issue
January 6—Motor Age—Annual Show Issue
Jan. 15—Commercial Car Journal—New York Show Issue
January 27—Motor Age—Chicago Show Issue

Kincaid Has Banquet

CHAMPAIGN, Ill., Nov. 6.—The Kincaid Motor company, Chevrolet dealers here, was host to a group of Chevrolet sales executives and its staff of employees, at a banquet in the Town club recently at a "commencement" dinner. W. C. and E. L. Kincaid and W. A. Martin of the local agency arranged the event and among the guests and speakers were Mr. and Mrs. A. W. L. Gilpin, Detroit; and Messrs. A. Z. Floyd, L. V.

Bierk, O. V. Klemm and Walter Emerson of the Chicago sales force.

Farmers Chief Buyers

WINNIPEG, Man., Nov. 6.—Farmers constitute the largest automobile owning class in Western Canada. Of 241,226 cars in the three prairie provinces, 156,796 are in the hands of farmers, according to a survey by Manitoba government authorities.

Output of Files and Rasps

WASHINGTON, Nov. 6.—Manufacturers engaged primarily in the production of files and rasps, the largest user of which is the automotive industry, issued products in 1925 valued at \$13,352,703, the biennial census of manufacturers by the Department of Commerce shows. The figures represent a decrease of two-tenths of one per cent as compared with 1923.

Prices and Weights of Current Passenger Car Models

SHIP WT. PASS. BODY STYLE. PRICE	SHIP WT. PASS. BODY STYLE. PRICE	SHIP WT. PASS. BODY STYLE. PRICE	SHIP WT. PASS. BODY STYLE. PRICE
AUBURN "4-44"	2995 2-p Coupe 1,195	3400 4-p Roadster \$2,800	2620 5-p Touring \$1,325
5-p Touring \$1,145	2995 2-p De Luxe Coupe 1,285	3450 5-p Touring 2,800	24-p Roadster 1,385
5-p Roadster 1,145	3230 5-p Sedan 1,295	3550 4-p Coupe 3,200	5-p Sedan 1,385
5-p Coupe 1,175	1780 2-p Roadster 510	3750 5-p Sedan 3,400	5-p Coupe 1,385
5-p Sedan 1,195	1875 5-p Touring 510		
"6"	2030 2-p Utility Coupe 645		
2-p Roadster \$1,095	5-p Coach 645		
5-p Touring	2130 5-p Sedan 735		
5-p Brougham 1,195	2215 5-p Landau Sedan 765		
5-p Sedan 1,295	2215 5-p Landau Sedan 765		
5-p Wanderer Se'n 1,345	2215 5-p Landau Sedan 765		
"6-66"	2779 5-p Sedan		
2850 4-p Sp. Roadster \$1,395	2779 5-p Sedan		
2860 6-p Touring 1,395	2779 5-p Sedan		
3-p Coupe 1,445	2780 5-p Touring \$1,095		
3020 5-p Brougham 1,495	2780 5-p Roadster 1,295		
3070 5-p Sedan 1,695	2780 5-p Coupe 1,495		
3070 5-p Wanderer 1,745	2780 5-p Landau R'dster 1,675		
"8-77"	2780 5-p Landau R'dster 1,675		
2-p Roadster \$1,395	2780 5-p Landau R'dster 1,675		
5-p Touring	2780 5-p Landau R'dster 1,675		
5-p Brougham 1,495	2780 5-p Landau R'dster 1,675		
5-p Sedan 1,695	2780 5-p Landau R'dster 1,675		
5-p Wanderer Se'n 1,745	2780 5-p Landau R'dster 1,675		
"8-88"	2780 5-p Landau R'dster 1,675		
(129 in. W. B.)	2780 5-p Landau R'dster 1,675		
2845 4-p Sp. Roadster \$1,695	2780 5-p Landau R'dster 1,675		
2955 5-p Touring 1,695	2780 5-p Landau R'dster 1,675		
3020 2-4-p Coupe 1,745	2780 5-p Landau R'dster 1,675		
3150 5-p 2 d. Sedan 1,745	2780 5-p Landau R'dster 1,675		
3110 4-p Coupe 1,745	2780 5-p Landau R'dster 1,675		
3230 5-p 4 d. Sedan 1,745	2780 5-p Landau R'dster 1,675		
"120"	2780 5-p Landau R'dster 1,675		
(120 in. W. B.)	2780 5-p Landau R'dster 1,675		
3800 4-p Coupe \$1,465	2780 5-p Landau R'dster 1,675		
3670 5-p 2-d. Sedan 1,395	2780 5-p Landau R'dster 1,675		
3765 5-p 4-d. Sedan 1,495	2780 5-p Landau R'dster 1,675		
"128"	2780 5-p Landau R'dster 1,675		
(128 in. W. B.)	2780 5-p Landau R'dster 1,675		
3570 4-p Sp. Roadster \$1,495	2780 5-p Landau R'dster 1,675		
3635 5-p Sp. Touring 1,525	2780 5-p Landau R'dster 1,675		
3805 4-p Country Club 1,765	2780 5-p Landau R'dster 1,675		
5-p Coupe 1,850	2780 5-p Landau R'dster 1,675		
3-p Coupe 1,925	2780 5-p Landau R'dster 1,675		
3940 5-p Brough. Sedan 1,925	2780 5-p Landau R'dster 1,675		
4025 7-p Sedan 1,995	2780 5-p Landau R'dster 1,675		
CADILLAC			
"314" Standard Line			
(132 in. W. B.)			
4170 5-p Brougham \$2,995	3750 4-p Roadster \$3,500	3020 5-p Phaeton \$1,585	
4105 2-p Coupe 3,100	3750 4-p Sp. Tourer 3,500	3660 7-p Touring 1,685	
4190 5-p Victoria 3,195	3750 4-p Phaeton 3,500	3065 2-p Speedster 1,795	
4270 5-p Sedan 3,250	3750 4-p Petite Coupe 4,500	3225 4-p Tourster 1,795	
4460 2-p Sport Coupe 3,500	3750 4-p De Luxe Coupe 4,750	3160 4-p Speedster 1,895	
4590 6-p Sport Sedan 3,650	3750 4-p Sedan 4,750	(Enc.) 2,085	
(138 in. W. B.)	3750 4-p Sedan Lim. 3,595		
4370 7-p Sedan \$3,400	3750 4-p Sedan Lim. 3,595		
4480 7-p Imperial 3,535	3750 4-p Sedan Lim. 3,595		
Custom Built	3750 4-p Sedan Lim. 3,595		
(132 in.)	3750 4-p Sedan Lim. 3,595		
4220 2-p Roadster \$3,350	3750 4-p Sedan Lim. 3,595		
4300 2-p Conv't Coupe 3,450	3750 4-p Sedan Lim. 3,595		
(138 in. W. B.)	3750 4-p Sedan Lim. 3,595		
4285 7-p Touring \$3,450	3750 4-p Sedan Lim. 3,595		
4275 5-p Phaeton 3,450	3750 4-p Sedan Lim. 3,595		
4465 5-p Sp. Phaeton 3,975	3750 4-p Sedan Lim. 3,595		
4465 5-p Coupe 3,855	3750 4-p Sedan Lim. 3,595		
4465 5-p Sedan 3,995	3750 4-p Sedan Lim. 3,595		
4580 7-p Suburban 4,125	3750 4-p Sedan Lim. 3,595		
4615 7-p Imperial 4,350	3750 4-p Sedan Lim. 3,595		
CASE			
J. I. C.			
3260 3-p Roadster \$1,840	2915 5-p Legion. Tour. \$1,495	3565 11" 2,655	
3290 5-p Touring 1,885	3000 5-p Sedan 1,595	3760 11" 2,655	
3470 5-p Sp. Touring 2,160	3060 5-p Imperial Sedan 1,795	3760 11" 2,655	
3640 5-p Sedan 2,590	3275 5-p Touring 1,285	3565 11" 2,655	
3650 5-p Brougham 2,590	3275 5-p De Luxe Sedan 2,195	3760 11" 2,655	
"Y"	3275 5-p Cabriolet 2,095		
3950 7-p Touring \$2,225	3275 5-p Sedan (135 in. W. B.) 2,695		
4320 7-p Sedan 2,975	3275 5-p Sedan (135 in. W. B.) 2,695		
CHANDLER BIG SIX			
3200 2-4-p Roadster \$1,695	2995 5-p Roadster \$1,795	4760 2-p Sport R'dster \$4,500	
3330 5-p Touring 1,645	2995 5-p Palm Bch. Rds. 1,995	4810 7-p Sport Touring 4,500	
3345 7-p Touring 1,645	3275 5-p De Luxe Sedan 2,195	4880 4-p Sport Phaeton 4,500	
3570 5-p 20th C'v Sedan 1,495	3275 5-p Cabriolet 2,095	4610 4-p Coupe 4,600	
3570 5-p Met. Sedan 1,595	3275 5-p Sedan 2,695	4885 4-p Sedan 4,800	
3485 4-p Coupe 1,675	3275 5-p Sedan 2,695	4760 5-p Sedan 5,100	
3725 7-p Sedan 1,795	3275 5-p Sedan 2,695	4890 7-p Sedan 5,300	
Standard Six	3275 5-p Sedan 2,695		
(108 1/2 in. W. B.)	3275 5-p Sedan 2,695		
2475 5-p Touring \$945	2448 2-p Roadster \$795	4945 7-p Limousine 2,495	
2565 5-p De Luxe Tour. 1,005	2538 2-p Special Roadster 845		
2470 2-4-p Sport R'dster 1,135	2567 5-p Touring 795		
2685 5-p Sedan 995	2497 2-p Spec. Touring 845	4760 4-p Sportif 5,500	
2620 2-p Coupe 1,035	2497 2-p Sport Roadster 945	4770 4-p Roadster 5,750	
2685 5-p De Luxe Sedan 1,095	3260 5-p Sport Touring 880	4680 4-p Victoria Coupe 6,950	
2620 2-p De Luxe Coupe 1,125	3260 5-p Coupe 845	4842 5-p Victoria Sedan 7,300	
Special Six	3260 5-p Spec. Coupe 895	4615 7-p Cabriolet 7,500	
(115 in. W. B.)	3260 5-p Sedan 895	4930 7-p Suburban 7,500	
2890 5-p Touring \$1,145	3260 5-p Sedan 895	4615 7-p Brougham 7,500	
2940 5-p Sport Touring 1,295	3260 5-p Sedan 895		

Manufacturers do not quote
list prices.

Prices and Weights of Current Passenger Car Models

| SHIP
WT. PASS. BODY STYLE. PRICE |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| MFARLAN "6" | OVERLAND | PIERCE-ARROW (Continued) | STEARNS-KNIGHT
"6-35" |
| "SV" | Whippet | 4840 7-p Enclosed Lim. \$5,875 | 2-p Roadster \$3,250 |
| 3700 2-p Roadster \$2,650 | 1985 2-p Touring \$645 | 4840 7-p French Lim. 7,500 | 4-p Touring 3,250 |
| 3700 2-p Spec. Roadster 2,900 | 2130 2-p Coupe 685 | 4840 7-p Encl. Dr. Land 6,000 | 2-p Cab-Roadster 3,550 |
| 3600 5-p Touring 2,650 | 2075 5-p Sedan 695 | 4760 7-p Sedan Landau 6,000 | 4-p Coupe 3,350 |
| 3600 7-p Touring 2,750 | "93" | 4880 4-p Lim. Encl. 6,375 | 5-p Std. Sedan 3,350 |
| 3600 5-p Brougham 4d. 3,180 | | 4800 4-p Sedan Landau 6,600 | 5-p Custom Sedan 3,350 |
| 3850 4-p Coupe 3,180 | 2395 5-p Touring \$825 | 4880 4-p Encl. Landau 6,600 | 7-p Sedan 3,550 |
| 3850 5-p Sedan 3,180 | 2397 2-p Coupe 825 | 4740 7-p French Landau 8,000 | 5-p Std. Sedan Lim. 3,550 |
| 3850 5-p Spec. Sedan 3,180 | 2443 4-p Std. Sedan 835 | | 5-p Cus. Sedan Lim. 3,550 |
| 3850 7-p Sedan 3,280 | 2583 5-p De Luxe Sedan 975 | | 7-p Sedan Lim. 3,750 |
| 3850 5-p Sub. Sedan 3,380 | | | |
| 3850 7-p Sub. Sedan 3,480 | | | |
| "TV" | PACKARD "6" | PONTIAC | STUDEBAKER Standard Six |
| | 4-p Roadster \$2,685 | 2395 2-p Coupe \$825 | 2700 3-p Du. Roadster \$1,160 |
| | 5-p Phaeton 2,585 | 2450 5-p 2d. Sedan 825 | 2765 3-p Du. Phaeton 1,180 |
| | 4-p Coupe 2,685 | 2455 5-p Landau Sedan 895 | 2875 3-p Country Club 1,295 |
| | 5-p Sedan 2,585 | | 5-p Coach 1,230 |
| 4000 2-p Roadster \$5,400 | (133 in. W. B.) | 3375 2-p Roadster \$1,665 | 5-p Sedan 1,330 |
| 4600 4-p Sp. Touring 5,600 | | 3182 5-p Sp. Touring 1,395 | 5-p Custom Sedan 1,385 |
| 4900 4-p Coupe 6,720 | | 3365 2-p Coupe 1,495 | Cus. Victoria 1,335 |
| 5200 4-p Tour. Sedan 6,720 | 7-p Touring \$2,785 | 3365 2-p Spec. Coupe 1,565 | |
| 5200 7-p Tour. Sedan 6,810 | | 3115 5-p Sedan 4d. 1,565 | |
| 6200 6-p Sedan 6,720 | | 3515 5-p Sedan Lim. 1,565 | |
| 6200 7-p Sedan 6,810 | | 3565 5-p Spec. Sedan 1,745 | |
| 6200 7-p Spec. Sedan 6,810 | | | |
| 6200 7-p Enc. Sedan 7,110 | | | |
| 5200 7-p Sub. Sedan 7,110 | "8" | | |
| 5200 7-p Town Car 9,000 | (136 in. W. B.) | | |
| "Straight 8" | 4-p Runabout \$3,850 | REVERE "25" | 3500 4-p Sp. Roadster 1,630 |
| | 5-p Phaeton 3,750 | 3900 2-p Sp. Roadster \$2,750 | 3495 5-p Du. Phaeton 1,480 |
| | 4-p Coupe 4,750 | 3975 4-p Speedster 2,750 | 3470 5-p Coach 1,480 |
| | 5-p Sedan 4,750 | 4050 5-p Touring 2,750 | 3620 5-p Brougham 1,830 |
| 3400 2-p Roadster \$2,650 | (143 in. W. B.) | 4300 5-p Sedan 3,800 | |
| 3400 4-p Roadster 2,900 | | | Big Six |
| 3400 5-p Touring 2,650 | | | 3270 2-p Du. Roadster 1,530 |
| 3450 7-p Touring 2,750 | | | 3400 4-p Sport Roadster 1,680 |
| 3650 5-p Sedan 3,180 | | | 3405 5-p Sport Phaeton 1,610 |
| 3650 5-p Sub. Sedan 3,380 | 7-p Touring \$3,950 | | 3510 5-p Club Coupe 1,480 |
| 3700 7-p Sedan 3,280 | | | 3705 4-p Cus. Victoria 1,735 |
| 3700 7-p Sub. Sedan 3,480 | | | 3835 5-p Custom-Bro'm 1,735 |
| 3650 4-p Coupe 3,180 | | | |
| 3650 5-p Coach Broug. 3,180 | | | |
| 3750 5-p Town Car 4,600 | | | |
| MARMON "75" | PAIGE "6-75" | RICKENBACKER "E" | STUTZ "A-A" |
| | (125 in. W. B.) | 7-p Touring \$1,655 | (131 in. W. B.) |
| | 7-p Touring | 3038 5-p Touring \$1,750 | 4-p Speedster \$2,995 |
| | 4-p Cab Roadster 1,995 | 3068 7-p Touring 1,795 | 4-p Speedster 2,995 |
| | 5-p Sedan 1,695 | 2953 4-p Roadster 1,795 | 5-p Brougham 2,995 |
| | 4-p Coupe 1,995 | 3116 5-p Coupe-Sedan 1,495 | 5-p Sedan 2,995 |
| | 7-p Sedan 1,995 | 3202 5-p Brougham 1,695 | 5-p Sedan 2,995 |
| | 7-p Limousine 2,245 | 3092 4-p Coupe Roadster 1,920 | 4-p Sedan 2,995 |
| 4251 2-p Speedster \$3,485 | "6-65" | 3317 5-p Sedan 1,995 | 4164 2-p Speedster \$2,995 |
| 4256 4-p Speedster 3,485 | (115 in. W. B.) | 3353 7-p Sedan 2,195 | 4175 4-p Speedster 2,995 |
| 4256 5-p Phaeton 3,485 | 4-p Roadster \$1,540 | | 4390 5-p Brougham 2,995 |
| 4256 7-p Tour. Speedster 3,565 | | | 4416 5-p Sedan 2,995 |
| 4256 7-p Coupe R'dster 3,565 | | | 4273 4-p Vic. Coupe 2,995 |
| 4256 5-p Town Coupe 3,195 | | | 4286 2-p Coupe 2,995 |
| 4256 2-p Coupe 3,485 | | | |
| 4346 4-p Victoria 3,485 | | | |
| 4346 5-p Brougham 3,565 | | | |
| 4498 5-p Sedan 3,565 | | | |
| 4620 7-p Sedan 3,640 | | | |
| 4620 5-p Custom Sedan 3,960 | | | |
| 4620 7-p Custom Sedan 4,075 | | | |
| 4620 7-p Custom Lim. 4,175 | | | |
| MOON "6-60" | PEERLESS "6-72" | PEERLESS "6-72" | VELIE "60" |
| 2295 3-5-p Roadster \$995 | 3175 5-p Touring \$1,895 | 3445 5-p Coupe Sedan 2,095 | 3025 5-p Club Phaeton \$1,450 |
| 2290 3-5-p DeL. Roadster 1,095 | 3425 5-p Coupe 2,295 | 3486 5-p Brougham 2,195 | 2908 3-p Coupe 1,450 |
| 2290 5-p Phaeton 995 | 3500 5-p Sedan 2,395 | 3345 4-p Coupe Roadster 2,320 | 3175 5-p Sedan 1,450 |
| 2290 5-p Coach 995 | (133 1/2 in. W. B.) | 3603 5-p Sedan 2,495 | 3340 5-p Royal Sedan 1,785 |
| 2290 7-p DeL. Broug. 1,095 | 3275 2-p Sp. Roadster \$2,195 | 3640 7-p Sedan 2,595 | 3350 5-p De Luxe Sedan 2,050 |
| 2290 7-p Cab. Roadster 1,195 | 3300 7-p Phaeton 1,995 | 4-p Sup. Sp. Sedan 5,000 | "50" |
| 2290 4-d Sedan 1,195 | 3700 7-p Sedan 2,595 | | (112 in. W. B.) |
| 2605 Series "A" | 3825 7-p Limousine 2,695 | | 5-p Sedan \$1,045 |
| 2605 5-p Custom Sedan 3,960 | 3875 5-p De Luxe Sedan 2,795 | | |
| 2605 7-p Custom Sedan 4,075 | 3850 7-p De Luxe Sedan 2,995 | | |
| 2605 7-p Custom Lim. 4,175 | "6-60" | | |
| | 3175 5-p Touring \$1,895 | | |
| | 3425 5-p Coupe 2,295 | | |
| | 3500 5-p Sedan 2,395 | | |
| | "6-60" | | |
| | 3275 2-p Sp. Roadster \$2,195 | | |
| | 3300 7-p Phaeton 1,995 | | |
| | 3700 7-p Sedan 2,595 | | |
| | 3825 7-p Limousine 2,695 | | |
| | 3875 5-p De Luxe Sedan 2,795 | | |
| | 3850 7-p De Luxe Sedan 2,995 | | |
| NASH "Light Six" | PEERLESS "6-72" | PEERLESS "6-72" | VELIE "60" |
| 2275 5-p Touring \$865 | 3140 5-p Std. Sedan 1,595 | 3445 5-p Coupe Sedan 2,095 | 3025 5-p Club Phaeton \$1,450 |
| 2310 2-p Coupe 925 | 3140 5-p De Luxe Sedan 1,795 | 3486 5-p Brougham 2,195 | 2908 3-p Coupe 1,450 |
| 2475 5-p Sedan 995 | "6-90" | 3345 4-p Coupe Roadster 2,320 | 3175 5-p Sedan 1,450 |
| NASH "Special" | | 3603 5-p Sedan 2,495 | 3340 5-p Royal Sedan 1,785 |
| 2900 2-p Roadster \$1,115 | 2950 5-p Sedan 2d. 1,545 | 3640 7-p Sedan 2,595 | 3350 5-p De Luxe Sedan 2,050 |
| 2980 5-p Touring 1,135 | 2950 5-p Coupe 1,545 | 4-p Sup. Sp. Sedan 5,000 | "50" |
| 2980 5-p Cab. Roadster 1,595 | 2950 5-p Coupe Roadster 1,565 | | (112 in. W. B.) |
| 2710 5-p Del. Broug. 1,395 | 2950 5-p Sedan 2d. 1,545 | | 5-p Sedan \$1,045 |
| 2860 5-p Del. Sedan 4d. 1,545 | 2950 5-p Std. Sedan 1,595 | | |
| NASH "Light Six" | "6-90" | 4-p Sup. Sp. Road- ster 3,250 | |
| 2275 5-p Touring \$865 | 3140 5-p Sport Sedan 1,795 | | |
| 2310 2-p Coupe 925 | 3140 5-p De Luxe Sedan 1,795 | | |
| 2475 5-p Sedan 995 | "6-90" | | |
| NASH "Special" | | | |
| 2900 2-p Roadster \$1,115 | 2950 5-p Sport Sedan 1,795 | | |
| 2980 5-p Touring 1,135 | 3140 5-p De Luxe Sedan 1,795 | | |
| 2980 4-p Roadster 1,225 | "6-90" | | |
| 3030 2-p Business Coupe 1,165 | 3140 5-p Coupe 1,545 | | |
| 3150 5-p Sedan 2d. 1,215 | 3140 5-p Sedan 1,595 | | |
| 3170 5-p Sedan 1,315 | 3140 5-p Sport Sedan 1,795 | | |
| NASH "Advanced" | | | |
| (121 in. W. B.) | "6-90" | | |
| | 3675 5-p Roadster \$2,995 | | |
| | 3675 7-p Sedan 3,095 | | |
| | "6-80" | | |
| | 3675 5-p Coupe 3,095 | | |
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| | "6-80" | | |
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Mechanical Specifications of Current Passenger Car Models

This list comprises cars distributed on a national basis

MAKE AND MODEL	WHEEL BASE (inches)	TIRE SIZE	DECK-UP-Balloons	ENGINE		ELECTRICAL SYSTEM		REAR AXLE		BRAKES		SUSPENSION GEAR MAKE	TYPE AND LENGTH SPRINGS—TYPE AND LENGTH	TYPE AND MAKE	TYPE AND LUBRICATION
				Model and Make	Number of Cyls.	Stroke, Bore and Stroke	Centered System	Generator Make	Generator Make	Clutch—Type and Make	Clutch—Type and Make				
Auburn.....4-44	120	30x5 25	Lyc...CF	4-3½x5	21.0	206 L He. Al.	N Remy.	Remy. P.B&B.	W.G.	m-U.P.	½ Sal.	5-10 E-F. E-T	H Ross.	S-50½	Oil-Ju
Auburn.....6-66	120	30x5 25	Lyc...43M	6-3½x4½	25.3	224 L Ch. C.I.	4 N P.C.	N Remy.	P.Long.	W.G.	½ Col.	5 10 B-F. E-T	M Ross.	S-57	Pr-Do.
Auburn.....8-77	125	30x5 25	Lyc...43M	6-3½x4½	45.0	240 Ch. C.I.	5 N P.C.	N Remy.	P.Long.	W.G.	½ Col.	5 10 B-F. E-T	M Ross.	S-57	Pr-Do.
Auburn.....8-88	120	30x5 77	Lyc...AHM	8-3½x4½	35.8	299 L Ch. C.I.	5 N P.C.	N Remy.	P.Long.	W.G.	½ Col.	5 10 B-F. E-T	M Ross.	S-57	Pr-Do.
Buick.....11.	14½	32x6 30	Own. Std.	6-3½x4½	23.4	207 I He. C.I.	4 Y P.C.	Y Delco.	D.Own.	Own.	¾ Own.	4.40 E-F. I.R.	M Jac.	V-4½	Pr-Ze.
Buick.....120 & 12.	120-128	31x3 25	Own. Std.	6-3½x4½	29.4	274 I He. C.I.	4 Y P.C.	Y Delco.	D.Own.	Own.	¾ Own.	4.40 E-F. I.R.	M Jac.	V-4½	Pr-Ze.
Cadillac.....3½	132-138	33x6 00	Own. Mast.	6-3½x4½	31.2	314 L Ch. C.I.	4 N P.C.	N Remy.	P.Long.	W.G.	½ Col.	5 10 B-F. E-T	M Jac.	V-4½	Pr-Ze.
Cadillac.....Case	132	31x7 30	Own. Mast.	6-3½x4½	33.7	331 I He. C.I.	4 N P.C.	N Remy.	P.Long.	W.G.	½ Col.	5 10 B-F. E-T	M Jac.	V-4½	Pr-Ze.
Chrysler.....Big J	122	32x6 20	Con. 6	6-3½x4½	27.3	242 L Ch. C.I.	4 N P.C.	N Remy.	P.Long.	W.G.	½ Col.	5 10 B-F. E-T	M Jac.	V-4½	Pr-Ze.
Chandler.....Sidd. 6	124	33x6 00	Own. Std.	6-3½x4½	29.4	289 L Ch. C.I.	4 Y P.C.	Y Bosch.	P.B&B.	Own.	¾ Own.	4.45 E-F. E-T	M Jac.	S-54½	Pr-Sa.
Chandler.....Spec. 6	108½	30x4 75	Own. Std.	6-3½x4½	21.6	180 Ch. C.I.	3 Y P.C.	Y Bosch.	P.B&B.	Own.	¾ Own.	4.45 E-F. E-T	M Jac.	S-54½	Pr-Sa.
Chevrolet.....X	115	31x3 25	Own. Std.	6-3½x4½	23.4	219 L Ch. C.I.	3 Y P.C.	Y Bosch.	P.B&B.	Own.	¾ Own.	4.45 E-F. E-T	M Jac.	S-54½	Pr-Sa.
Chevrolet.....103	103	30x3 ½	Own. Sup.	6-3½x4½	21.8	171 I He. C.I.	3 P.S. N	N Remy.	P.Own.	Own.	½ Own.	3.8 E-F. E-T	M Jac.	S-54½	Pr-Al.
Chrysler....."80"	185-198	32x6 20	Own.	6-3½x5	20.4	288 L Ch. Spe.	7 Y P.F.	Y Remy.	P.Own.	Own.	½ Own.	4.27 E-F. E-T	M Jac.	S-58	Pr-Ze.
Chrysler....."50"	153	28x4 75	Own.	6-3½x4½	21.0	201 L Ch. Spe.	7 Y P.F.	Y Remy.	P.Own.	Own.	½ Own.	4.27 E-F. E-T	M Jac.	S-58½	Pr-Ze.
Chrysler....."60"	156	30x5 25	Own.	6-3½x4½	21.6	180 L Ch. Spe.	7 Y P.F.	Y Remy.	P.Own.	Own.	½ Own.	4.27 E-F. E-T	M Jac.	S-58½	Pr-Ze.
Chrysler....."70"	162½	30x6 00	Own.	6-3½x4½	23.4	218 L Ch. Spe.	7 Y P.F.	Y Remy.	P.Own.	Own.	½ Own.	4.30 E-F. E-T	M Jac.	S-57½	Pr-Ze.
Cunningham.....V-6	132-142	33x6 75	Own.	6-3½x5	45.0	442 L He. C.I.	3 N P.P.	N Remy.	P.Own.	Own.	½ Own.	4.23 I.F.	M Ross.	J-62	Pr-Al.
Dagmar.....6-60	120	32x6 20	Con. 6	6-3½x4½	25.3	224 L Ch. C.I.	4 N P.C.	N Remy.	P.Own.	Own.	½ Own.	4.10 E-F. E-T	M Ross.	S-52	Pr-Al.
Dagmar.....6-70	138	33x5 25	Con. 6	6-3½x4½	33.8	331 I Ch. C.I.	4 N P.C.	N Remy.	P.Own.	Own.	½ Own.	4.10 E-F. E-T	M Ross.	S-52	Pr-Al.
Davis.....92-27	115	32x4 95	Con. 6	6-3½x4½	25.3	230 L Ch. C.I.	4 Y P.C.	Y Bosch.	P.B&B.	Own.	¾ Own.	4.30 E-F. E-T	M Ross.	S-52	Pr-Al.
Diana.....Se. 8	125½	32x6 00	Con. 6	6-3½x4½	18.1	169 L Ch. C.I.	4 Y P.C.	Y Bosch.	P.B&B.	Own.	¾ Own.	4.30 E-F. E-T	M Ross.	S-52	Pr-Al.
Dodge Brothers.....Se. 8	134-141	33x5 25	Own.	6-3½x4½	24.0	282 L He. Al.	3 N P.S.	N Remy.	P.Own.	Own.	¾ Own.	4.10 E-F. E-T	M Ross.	S-52	Pr-Al.
Duesenberg.....Se. 6	125	30x5 25	Own.	6-3½x5	24.4	260 I He. Al.	3 N P.K.	N Remy.	P.Own.	Own.	¾ Own.	4.10 E-F. E-T	M Ross.	S-52	Pr-Al.
Dufont.....4-55	116	30x5 25	Lyc...CB-4-3½x5	21.8	268 L Ch. C.I.	3 N P.C.	N Remy.	P.Own.	Own.	½ Col.	4.82 E-F. E-T	M Ross.	S-51	Pr-Al.	
Elcar.....6-65	116	30x5 25	Lyc...46M 6-3½x4½	25.3	224 L Ch. C.I.	4 N P.C.	N Remy.	P.Own.	Own.	½ Col.	4.82 E-F. E-T	M Ross.	S-51	Pr-Al.	
Elcar.....8-81	127	32x6 20	Lyc...4HM 6-3½x4½	33.8	299 L Ch. C.I.	5 Y P.C.	Y Bosch.	P.B&B.	Own.	¾ Own.	4.82 E-F. E-T	M Ross.	S-51	Pr-Al.	
Easer.....6	132	32x6 20	Con. 6	6-3½x4½	17.3	145 L Ch. Al.	3 N P.S.	N Remy.	P.Own.	Own.	¾ Own.	4.60 E-F. I.R.	M Ross.	S-54½	Pr-Ze.
Flinn.....Z-18	110½	30x4 75	Own.	6-2½x14½	24.0	260 I He. Al.	3 N P.K.	N Remy.	P.Own.	Own.	¾ Own.	4.87 E-F. E-T	M Ross.	S-54½	Pr-Ze.
Flinn.....B-60	115	30x5 77	Con. 6	6-3½x4½	18.1	169 L Ch. C.I.	4 N P.C.	N Remy.	P.Own.	Own.	¾ Own.	4.77 E-F. E-T	M Ross.	S-51½	Pr-Ze.
Ford.....E-80	120	32x6 20	Con. 6	6-3½x5	25.3	230 L Ch. C.I.	7 Y P.C.	Y Remy.	P.Own.	Own.	½ Own.	4.09 E-F. E-T	M Ross.	S-51½	Pr-Ze.
Ford.....T	100	28x4 70	Con. 6	6-3½x5	22.5	268 L Ch. C.I.	7 Y P.C.	Y Remy.	P.Own.	Own.	½ Own.	4.77 I.F.	M Ross.	S-51½	Pr-Ze.
Franklin.....11	131½	25	Own.	6-3½x4½	25.3	177 L Ch. C.I.	7 N S.P.	N Remy.	P.Own.	Own.	½ Own.	4.77 I.F.	M Ross.	S-51½	Pr-Ze.
Gardner.....6B	118	31x5 25	Con. 6	6-3½x4½	25.3	224 L Ch. C.I.	4 N P.C.	N Remy.	P.Own.	Own.	¾ Own.	4.73 E-F. E-T	M Ross.	S-51½	Pr-Ze.
Gardner.....9B	125	32x6 00	Con. 6	6-3½x4½	33.8	298 L Ch. C.I.	5 Y P.C.	Y Bosch.	P.B&B.	Own.	¾ Own.	4.90 I.F.	M Ross.	S-51½	Pr-Ze.
Hertz.....D-1	114	30x5 77	Own.	6-3½x5	27.3	288 L Ch. C.I.	4 N P.S.	N Remy.	P.Own.	Own.	¾ Own.	4.80 I.F.	M Ross.	S-51½	Pr-Ze.
Hudson.....Super "A"	114	30x5 25	Own.	6-3½x4½	25.3	196 L Ch. C.I.	4 Y P.C.	Y Bosch.	P.B&B.	Own.	¾ Own.	4.80 I.F.	M Ross.	S-51½	Pr-Ze.
Hupmobile.....E	125	33x6 00	Own.	6-3½x4½	28.8	268 L Ch. C.I.	5 Y P.C.	Y Bosch.	P.B&B.	Own.	¾ Own.	4.91 E-F. E-T	M Ross.	S-51½	Pr-Ze.
Hupmobile.....6-45	109	30x5 25	Con. Spec. 6	6-2½x14½	19.8	185 L Ch. C.I.	4 N P.K.	N Remy.	P.Own.	Own.	¾ Own.	4.90 E-F. E-T	M Ross.	S-51½	Pr-Ze.
Jewett.....AA	125	32x6 20	Con. Spec. 6	6-3½x4½	28.8	268 L Ch. C.I.	5 Y P.F.	Y Bosch.	P.B&B.	Own.	¾ Own.	4.90 E-F. E-T	M Ross.	S-51½	Pr-Ze.
Jordan.....J	116	30x6 00	Con. Spec. 6	6-2½x14½	26.4	247 L Ch. C.I.	5 Y P.F.	Y Bosch.	P.B&B.	Own.	¾ Own.	4.95 E-F. E-T	M Ross.	S-51½	Pr-Ze.
Kissel.....55	124	33x6 00	Own.	6-3½x5½	32.6	265 L Ch. Al.	3 N P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.65 I.F.	M Ross.	S-50	Pr-Ze.
Kissel.....75	131-139	33x6 00	Own.	6-3½x5½	32.6	287 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.65 I.F.	M Ross.	S-50	Pr-Ze.
Lincoln.....Jr. 8	136	33x5 25	Own.	6-3½x5½	36.4	358 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.88 E-F. E-T	M Ross.	S-60	Pr-A.
Lincoln.....Jr. 8	124	30x5 77	Own. Jr.	8-2½x4½	25.3	199 I Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.58 E-F. E-T	M Ross.	S-60	Pr-A.
Locomobile.....48	142	33x6 75	Own.	6-4½x5½	48.6	525 T He. C.I.	7 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-55½	Pr-Ze.
Locomobile.....48	142	33x6 75	Own.	6-4½x5½	48.6	525 T He. C.I.	7 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-55½	Pr-Ze.
Mercury.....Al	124	33x6 00	Own.	6-3½x5½	22.6	265 L Ch. Al.	3 N P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.09 E-F. E-T	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	22.6	287 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.88 E-F. E-T	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	36.4	358 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.58 E-F. E-T	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	199 I Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	247 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	287 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	358 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	199 I Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	247 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	287 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	358 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	199 I Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	247 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	287 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	358 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	199 I Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	247 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	287 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.	¾ Own.	4.77 I.F.	M Ross.	S-60	Pr-Da.
Mercury.....B-7	124	33x6 00	Own.	6-3½x5½	25.3	358 L Ch. Al.	5 Y P.F.	Y Remy.	P.Own.	Own.					

Folks live longer because of automobiles like this

LIFE is so full of opportunities for work, pleasure, healthy recreations and service that today it must be measured by a capacity for participation in all these. It is the presence of these that gives the fullness to life in this generation.

Seconds have almost the value of hours in other centuries. The minutes saved in going to and from work, in shopping, in ministering to countless human needs, by fleet, trouble-free motor transportation, are enriching and lengthening life for millions who now find time for health-building recreation, for art, for study, for advancement.

It is in this spirit of this age of progress, spiritual, ethical, artistic and material, that the fine Gardner cars have been created. Fleet, efficient, economical of time, attention, fuel and lubricants, they are adding to the fullness of life for an ever-increasing number of car owners.

An important contribution to their capacity for saving these precious hours of fullness comes from the fact that all Gardner cars are powered with Lycoming Motors.

LYCOMING MANUFACTURING COMPANY

Makers of Fine Fours, Sixes and Eights-in-Line

WILLIAMSPORT, PENNSYLVANIA

Export Department—44 Whitehall Street, New York City
MEMBERS OF MOTOR TRUCK INDUSTRIES, INC., OF AMERICA

LYCOMING

Motors



GARDNER
MOTOR CARS

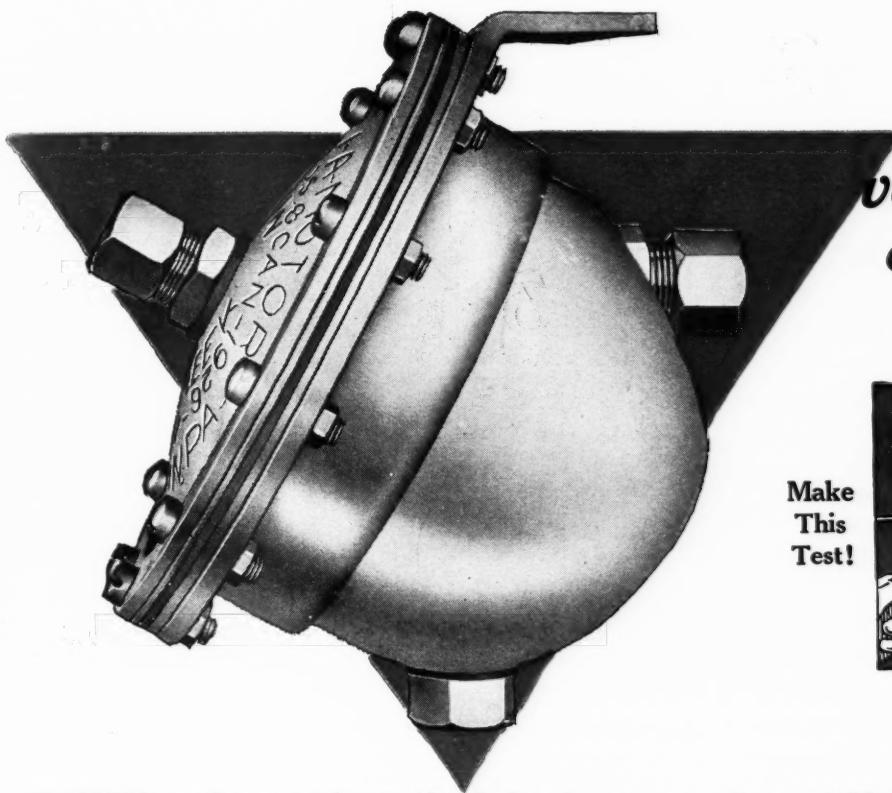


Mechanical Specifications of Current Passenger Car Models—Continued (From page 46)

48

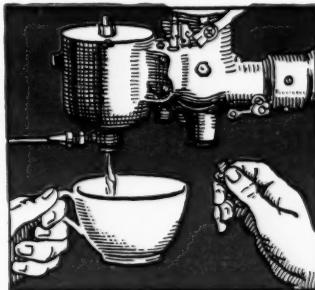
Motor Ag

Here's the *BIG DIFFERENCE* in Protex-A-Motor—



*It protects
BOTH
vacuum tank and
carburetor from
Dirty Gasoline*

Make
This
Test!



Drain off a tea-cupful of gas from any carburetor. Note the sediment that settles to the bottom of the cup. Dirt, rust, scale, lint, water.

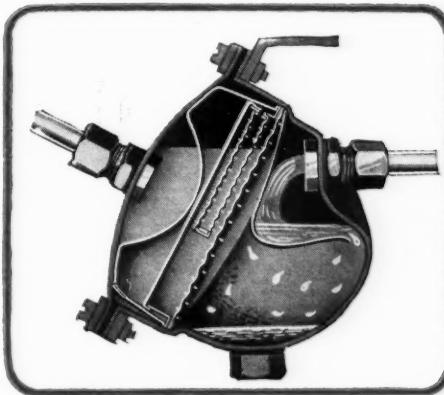
DIRTY gasoline must be purified **before it enters the vacuum tank!** Engineers agree on that. For dirty gasoline is just as damaging to the vacuum tank as to the carburetor. Ordinary "gas strainers" merely protect the carburetor. Even placed above the vacuum tank they soon become useless . . . for the rapid pumping of the vacuum tank sucks impurities through the unprotected wire mesh or chamois screen. Result—clogging and corrosion of the filter.

Realizing the vital need of a gasoline filter that would offer absolute protection to vacuum tank as well as carburetor—engineers have designed the Protex-A-Motor. Not a makeshift wire screen or chamois strainer that merely checks trouble at the carburetor—but a scientifically built gasoline PURIFIER that insures a constant flow of crystal clear gasoline into both vacuum tank and carburetor.

Protex-A-Motor sends every drop of gasoline through **FOUR** refining operations . . . separating . . . screening . . . filtering . . . flushing of the purifying media . . . all working together to produce an absolutely pure gasoline—impossible to achieve with the ordinary single screening device.

Unlike the ordinary strainer, Protex-A-Motor is **built on an angle**. Its angle and gravity cause all impurities that strike the purifying media to drop direct to sump. Absolutely non-clogging and self-cleaning!

Now—let's get together. Turn this page . . . the other side tells you how we're going to help you put it across. Read it . . . then investigate.



Protex-A-Motor Mfg. Co.
Pittston, Pa.

PROTEX-A-MOTOR

THE BETTER GASOLINE PURIFIER

Protex-A-Motor sends every drop of gasoline through



Can be Sold on 30 Day Trial Basis

Protex-A-Motor does its work so well that it can readily be sold on a 30 day trial plan. In fact test selling has shown this to be the most effective merchandising plan for this great device. 99 installations out of 100 turn into permanent sales.

Backed by These Great Sales Helps

Counter displays, window displays, envelope stuffers and direct mail matter are putting Protex-A-Motor over BIG. Investigate our selling plan on this years ahead device NOW!

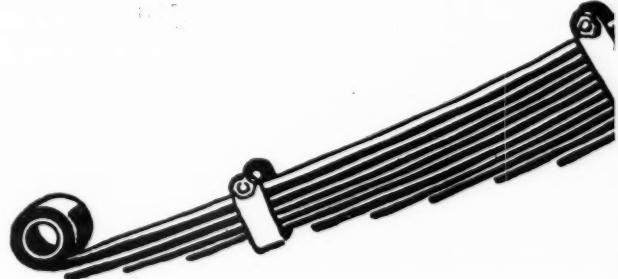


PROTEX-A-MOTOR

THE BETTER GASOLINE PURIFIER

Are you getting the most out of the ever-growing demand for replacement springs?

Backed by the great distributing organization for Eaton Springs you can reap splendid profits



Eaton Springs are made expressly to fit any car, truck or bus, by the same organization which produces the famous Eaton Axles and Eaton Bumpers.

THE millions of cars that crowd the highways today have made spring-replacement an important and highly profitable business the country over. Today the man who gets the bulk of spring-replacement business in any community is to be envied.

Eaton's wonderful service of supply offers you a splendid opportunity for entering this field. No matter where you're located, you're sure to be within easy reach of a jobber who can supply you with the exact Eaton Spring you need *when you need it*. He's backed by complete Eaton warehouse stocks nearby.

Write, phone or wire the nearby Eaton jobber—we'll give you his address if you don't know him—and learn how the greatest spring-producing and distributing organization in the country can help you make new profits.

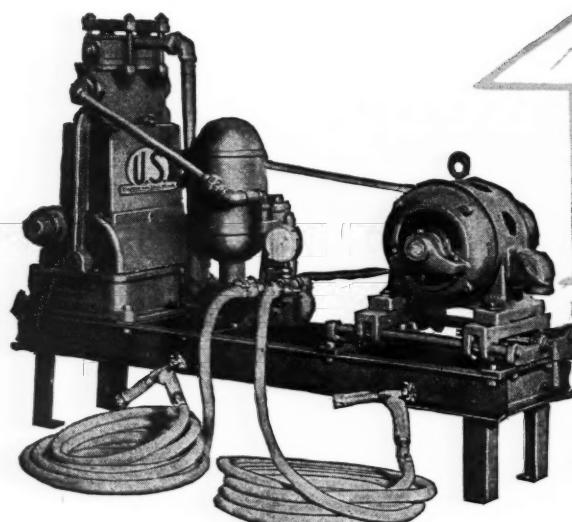
THE EATON BUMPER & SPRING SERVICE CO.
Cleveland, Ohio

Factory Branches and complete warehouse stocks at—Boston, New York, Philadelphia, Cleveland, Detroit, Chicago, Minneapolis, Denver, Kansas City, Dallas, Atlanta.

EATON SPRINGS

Formerly AMERICAN and PERFECTION Springs





There's No Need Now For "The Old Oaken Bucket"



YOU don't need to use a barrel or tank (except for soap solutions) with modern U. S. Car Washing Equipment. When you've got city water the patented Vacuum Breaker Valve, a special feature on U. S. Car Washing Equipment, enables you to attach this powerful unit to your city service line without damaging pipes or fixtures. You can take full advantage of its 300 pounds working pressure even when city pressure is as low as 25 pounds.

Modern conditions have created the demand for high pressure, hydraulic car washing units. Only in U. S. Car Washing Equipment do you find the following features; all enclosed pump, dust and dirt proof, all moving parts continuously bathed in oil; one-hand, pistol-grip gun which regulates pressure instantly from soft, completely atomized mist to powerful 300 pound gusher; adjustable motor base, saves belt, bearings and motor. Uses 90% less current. "Straight line action pistons" assure no wear to cylinder walls.

U. S. is supreme in the three fields: Air Compressors, Paint Spray Equipment and Car Washing Units. Write us for profitable information.

The United States Air Compressor Company
5304 Harvard Avenue, Cleveland, Ohio

Export Address: Fisk Bldg., New York City
Cable Address AIRPRESSOR—All Codes

The
United
States Air
Compressor
Company,
5304 Harvard Ave.,
Cleveland, Ohio

Send for information on the
new U. S. Auto Cleaner and
Blower.

Send me your latest bulletin on U. S. Equipment.

Name.....

Street.....

City.....

Interested in (Please check)

Car Washing Equipment.....

Paint Spray Units.....

Air Compressors.....

AIR COMPRESSORS
CAR WASHING UNITS
PAINT SPRAY EQUIPMENT





Ask your Chief of Police ..

THE EDITOR of the American City, a magazine devoted to civic affairs, recently made an investigation to determine what could be done to bring about safer motoring.

He addressed his inquiries to the men who are responsible for the regulation of traffic—for the safety of those who ride as well as those who walk—the Chiefs of Police of American cities and towns. The editor asked nearly 500 Police Chiefs what precautions, in their opinion, would be most effective in increasing the safety of motorists and pedestrians. And here is what they recommended. . . .

Limiting automobile speed to 40 miles an hour.

Regular inspection of cars, especially the brakes.

Standardized traffic laws.

Stricter license tests for drivers.

The use of the All-Steel automobile body.

Particularly interesting is this official recognition of the All-Steel Body's contribution

to the cause of safer motoring. It confirms the public confidence in All-Steel construction as the greatest protection yet devised against personal injury.

Most motorists realize the superiority of All-Steel. Many mistakenly believe they enjoy its protection, simply because of the metal surface on their cars. This misunderstanding should be corrected.

The fact is that there are two prevailing types of automobile bodies. One is an interior framework of wood with a veneer of metal. The other is steel through and through—a framework of steel, and a surface of steel, welded into a single impact-resisting unit.

If you happen to know your Chief of Police, or any other authority on traffic problems, ask him yourself whether he thinks the All-Steel Body affords increased protection to those who ride in motor cars. There can be no doubt of his reply. And, when you buy your next car, be sure that the body on that car is an All-Steel Body, and not a framework of wood covered by a shell of metal.

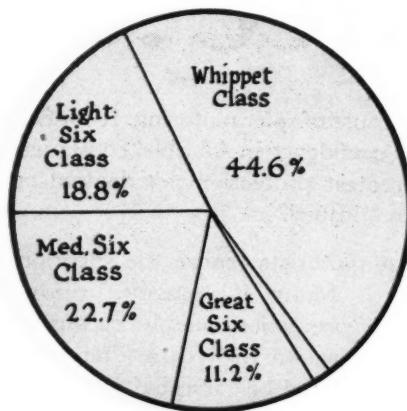
**EDWARD G. BUDD MANUFACTURING CO.
PHILADELPHIA
DETROIT**



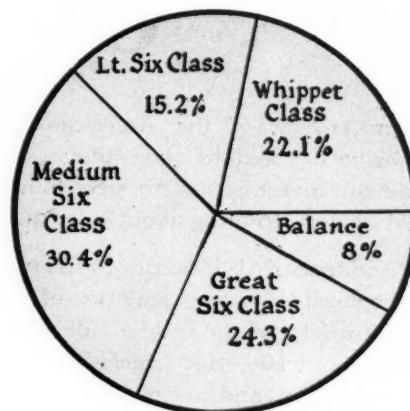
L *Originators of the All-Steel Automobile Body* **J**

Unequalled Market Coverage

What Willys-Overland Offers the Dealer
Seeking a New Franchise



Willys-Overland's four chassis lines blanket 97.3% of this Great Market. Only 2.7% of the market is not open to the Willys-Overland dealer.



In money volume the Willys-Overland Franchise covers 92% of the whole. Only 8% is beyond its scope. Just another way of saying "Complete Coverage."

THREE is nothing automatic about the automobile business! At best, a franchise can only offer you an opportunity to make money. The value of a franchise depends, then, on how much of an opportunity to make money it offers. The extent of this profit possibility can be quite accurately gauged by a consideration of a few fundamentals.

First. Does it afford sufficient market coverage to enable you to get your share of all the business in your community?

Second. Is the product sound? Is it popular? Is it thoroughly modern? Does it make friends? Is it properly priced?

Third. Are the manufacturer's methods of doing business, and policies, such that your business relations will be pleasant and profitable? Is it an organization that exploits the dealer or develops him?

Fourth. Is the manufacturing organization strong? Will it weather the process of elimination now in progress? Has it manufacturing facilities and experience comparable with the leaders of the industry?

A high standard, and a difficult one, but a franchise which does not fully satisfy these requirements is defective—it does not offer you the *full* profit opportunity you are entitled to.

The Willys-Overland Franchise does measure up to this standard in every way.

The charts above show its unequalled market coverage.

Willys-Overland automobiles are modern, they are popular, and are priced to make them outstanding values in their respective classes. It isn't possible to enter here into a detailed

analysis of the cars themselves. A critical examination will quickly convince you that they more than fulfill every requirement of construction, design and price.

Willys-Overland policies are admittedly fair and equitable. Full cooperation with Willys-Overland dealers, and expert assistance in all their merchandising as well as operation problems, is the basis of our factory-dealer relationship.

The financial and manufacturing strength of Willys-Overland is common knowledge. It is the third largest institution in the industry in both financial strength and production facilities.

The holder of a Willys-Overland Franchise holds an opportunity to make money unequalled in the entire industry. His possibilities are limited only by his own desire and his willingness to work intelligently.

In the big six field, the dealers depending solely on this one class are also quite restricted in their possibilities. This group will sell approximately 11.2% of the units, for about 24.3% of the total volume, and there are 20 strong bidders for this business.

It is obviously an optimistic dealer who hopes for any great success after having definitely limited his possibilities to *one* of these classes.

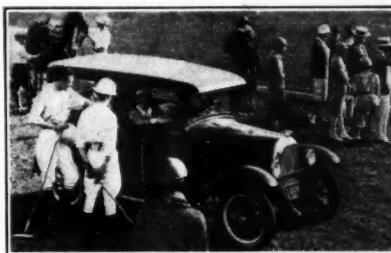
The holder of a "one car" franchise (particularly one whose manufacturer, realizing the weakness of his merchandise, carefully avoids demanding exclusive representation) could secure one or more additional franchises, but that is not satisfactory. He increases his overhead tremendously, and he complicates his selling problem by having two or three distinct Engineering Standards to sell.

The only logical answer to this situation is the "Full Coverage Line," and Willys-Overland has always pioneered full coverage.

With the Willys-Overland line, the dealer is not limited to one or even two of the market divisions—he is a major contender in all four, with a splendid opportunity to get more than his pro rata share of each.

To what particular portion of the potential market are you now limited? With the Willys-Overland Franchise you would be in active competition for 97.3% of all the business your community affords.

Compare the advantage—the unlimited profit possibilities of that with other franchises limiting your activities to a field yielding only 22%, 18%, 30% or 11% of the total business. That is but one of the outstanding advantages of the Willys-Overland Franchise. Write for Franchise details today. Willys-Overland, Inc., Toledo, Ohio. Willys-Overland Sales Co., Ltd., Toronto, Canada.



THE WHIPPET

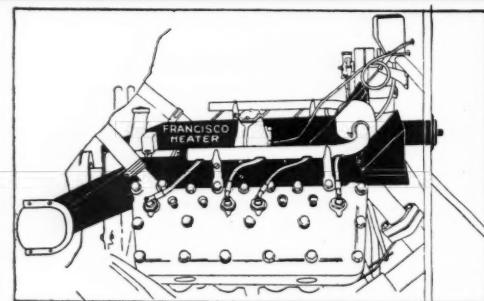
A wonderful automobile merchandising success

40,724 Whippets in three months. Never in the entire history of the automobile industry has any new model met with such instant and universal public approval. Now, new reduced prices on the Whippet and Overland Six are giving Willys-Overland dealers a further sales stimulus.

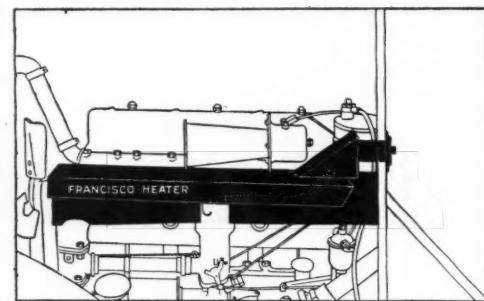
Willys-Overland

Fine Motor Cars

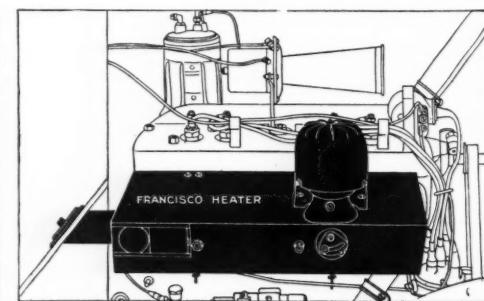
FRANCISCO



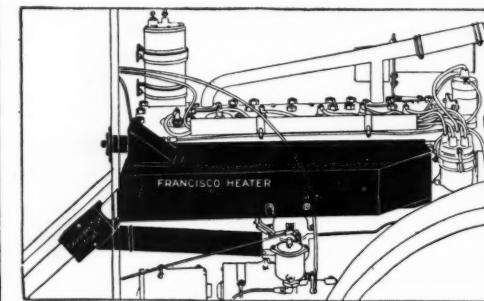
Cadillac



Buick



Dodge



Hudson

Francisco Efficiency Is Found Only in Francisco Heaters

Francisco Auto Heaters supply fresh-air heat in great volume in both closed and curtained open cars. They ventilate thoroughly, assuring pure, fresh air at all times. They hot-spot the intake manifold, bringing motors up to summer efficiency! And, they reduce gasoline bills!

Franciscos are the only heaters that cover both the intake and exhaust manifolds. Our basic patents prevent any possible chance of successful duplication of the Francisco by any other manufacturer. No other heater can approach the efficiency of Francisco—the standard heater for all makes of cars.

Our advertising is working for you. The combined power of The Saturday Evening Post and The Country Gentleman, with their total market of more than 4 million homes, is making prospects and sales for you. The job is over half done. The rest—the easiest part—is up to you. **Order Franciscos from your jobber—TODAY!**

You'll sell more auto heaters because they are Franciscos. And you'll make bigger profits.

The Francisco Auto Heater Co.
Cleveland and Essex Aves.
Dept. 14

Columbus, Ohio

Francisco Canadian Auto Heater Co., Hamilton, Ont., Canada.
C. E. Immel, 616 E. Pine St., Seattle, Wash.

Auto Heaters

NOVEMBER 15

Starts "Weed Chain Week"

**ask every customer:
"have you Weed Chains
in your car?"**



Ask your jobber for new WEED Chain displays. Window streamers, counter reminders and the gasoline computer are effective "silent salesmen" always plugging for more sales.

Fix up your windows and counters for the biggest WEED Chain year ever.



Tell them that *Wet Rubber Slips*. Tell them the dangers of wet, slushy roads, snow and ice. Ask every customer whether he has WEED Chains in his car—whether he is prepared for bad Autumn weather or early snow.

Get after WEED Chains sales now . . . before bad roads set in—before snow and ice keep your customers, who neglected to buy tire chains, at home. Start now, during "Weed Chain Week" and keep at it.

Go after winter driving business

WEED Chains on cars bring you not only WEED Chain profits, but profits also on other accessories and supplies. Radiator covers, heaters and many other cold weather needs.

AMERICAN CHAIN COMPANY, Inc.
BRIDGEPORT, CONNECTICUT

In Canada: Dominion Chain Co., Limited, Niagara Falls, Ont.

District Sales Offices:

Boston Chicago New York Philadelphia Pittsburgh San Francisco
Makers of WEED Bumpers and WEED Levelizers



WEED CHAINS

"The most profitable of all accessories"

NORTHEASTER

DECEMBER

A Real Magnetic Horn



5	16	17	18
22	23	24	25
28	29	30	31



NORTHEASTER

Standard—Black enamel finish \$ 7.50
 Commodore—Standard size—brass or nickel finish..... \$11.50
 Special—Large size—black enamel with nickel trim... \$12.50
 Admiral—Large size—brass finish \$18.50
 Sergeant—Short projector—black enamel finish..... \$7.50



NORTHEASTERS for CHRISTMAS

THE NORTHEASTER's vibrant tone is carrying a new worthwhile gift suggestion to Christmas shoppers everywhere.

Here is a "gift that lasts"—one that fills a real need—one that never fails to recall the giver.

We are going to help you sell *Northeasters for Christmas*. Our December advertising in the Saturday Evening Post will focus attention on the unique gift value of the NORTHEASTER. And we have an attractive Christmas Package wrapper for you that will add much to the holiday appeal of the NORTHEASTER.

You can help yourselves sell *Northeasters for Christmas*. Put NORTHEASTER Christmas Packages on display in your windows and on your counters. Feature NORTHEASTER popularity—smartness—long life—price—to every customer that crosses your threshold. Build up your stocks and be ready for the holiday drive.

Let us know today how many Christmas Package wrappings you can use. Get your holiday orders in early so that you will have the benefit of the full season's business. *Don't forget the new models.*

NORTH EAST Products are distributed and serviced by

NORTH EAST SERVICE INC.

Rochester-Atlanta-Chicago-Detroit-Kansas City-New York
 San Francisco-London-Paris-Toronto
 Authorized Service Stations throughout the World

NORTHEASTER Horns are made by the

NORTH EAST ELECTRIC CO.

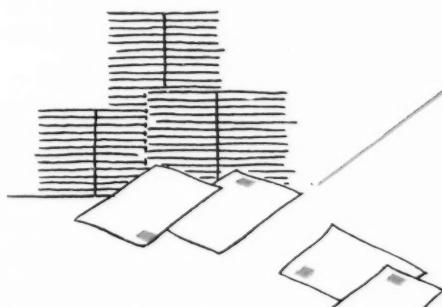
Manufacturers of Automotive Equipment
 Rochester, N. Y.



STARTING • LIGHTING • IGNITION • HORNS • SPEEDOMETERS • FRACTIONAL H.P. MOTORS



A L R E A D Y
7816 *retail inquiries*



As this issue goes to press 7816 people have expressed an active interest in the Little Marmon—and as yet the car has not been announced to the public + 519 inquiries in a single morning's mail + it is conservative to say that never before has such interest existed in a new car + + +

The greatest retail interest that was ever manifested in a new car prior to its introduction to the public

One of the most interesting things which we have to show to new dealers who seek the Marmon franchise is the number of people in their own communities who have inquired about the Little Marmon

—people who have heard that Marmon is building a small car which is also a truly fine car and are keenly interested in knowing more about it.

In fact, an average of more than 150 inquiries are received by the Marmon factory per day. These inquiries are almost entirely from people of means who have expressed a genuine interest in the car

and the things it will do—people who are quite willing to postpone the purchase of a new car until they have had the opportunity of examining the Little Marmon

—not merely because it is a new car but because it is a *new and entirely different conception*—a small, moderately priced automobile with all the individuality of the most pretentious.

To sum it all up—a vast, ready-made market exists for the Little Marmon—an active, nation-wide interest which insures one of the greatest successes the industry has ever seen.



MARMON MOTOR COMPANY Indianapolis, Indiana

We are interested in seeing the Little Marmon in a private, prior showing at the factory. It is understood that this request is to be held confidential.

Firm Name _____

By _____ *Address* _____

City _____ *State* _____

Genuine Piston Packing

STOP PISTON SLAP

PRESENT DISTRIBUTORS

Automotive Parts Service
Bellingham, Wash.
Automotive Service Co.
San Diego, Calif.
Baltimore Cork-Sealed Ring Co.
Baltimore, Md.
Benson-Wilcox Electric Co.
London, Ont.
London, Ont.
Paul Brokaw
Waterloo, Iowa
A. Carey & Sons
Hamilton, Ont.
Cork-Sealed Ring Sales Co.
Los Angeles, Calif.
Cork-Sealed Ring Co. of Minn.
St. Paul, Minn.
Cork-Sealed Ring Sales Co.
Syracuse, New York
Caldwell Bearing & Parts Co.
Albuquerque, Wash.
O. E. Cluster
Riverside, Calif.
E. M. & W. Engineering Co.
St. Louis, Mo.
F. & M. Automotive Equip. Co.
Everett, Wash.
Gauthier & Orr
Tacoma, Wash.
General Parts Corp.
Buffalo, N. Y.
Chas. Hagg & Son
St. Joseph, Mo.
W. T. Hawes, Ltd.
Montreal, Quebec
Ge Sada Hermanos
Torreón, Coah, Mexico
Hoge Piston & Ring Co.
Seattle, Wash.
Houseknecht Garage
Batavia, N. Y.
G. T. Kinney & Son
Olcott, N. Y.
Manning Garage
Peterboro, Ont.
Martinsburg Motor Co.
Martinsburg, W. Va.
Meadville Buick Co.
Meadville, Pa.
Modern Auto Repair
Oklahoma City, Okla.
H. L. Muttart
Yakima, Wash.
Paxton's Machine Shop
Loveland, Colo.
Phila. Cork-Sealed Ring Co.
Philadelphia, Pa.
Purser, Bull & Co., Ltd.
Toronto, Ont.
R. L. Motive Parts, Inc.
Washington, D. C.
R. C. Renolde & Co.
Detroit, Michigan
Richmond Cork-Sealed Ring Co.
Richmond, Virginia
Rochester Cork-Sealed Ring Co.
Rochester, N. Y.
Sanders Auto Parts Co.
Spokane, Wash.
Scully Battery Co.
Boise, Idaho
Sprankle Auto Parts, Inc.
Erie, Pa.
Steinel Battery Service
Jamestown, N. Y.
Tranter Mfg. Co.
Pittsburgh, Pa.
Thompson's Garage
De Kalb, Ill.
H. E. Voss
Maywood, Ill.
Wesley Electric & Supply Co.
Windsor, Ont.
H. S. Williams
Wilmington, Del.
Carl Youngstrom Co.
Des Moines, Iowa
C. C. Patten
Youngstown, Ohio



HOLD FULL COMPRESSION



Cork-Seal In Time
Save A Re-Grind

Make Sales Worth While

When factory branches order thousands of one brand of piston ring for replacement—the ring is right.

More than that—it is a ring that dealers find easy to sell. And it is one they can recommend.

CORK-SEALED PISTON RINGS are built on the principle of a packing ring. They reduce wear, stop oil pumping and blow-by. They are profitable from the standpoint of discounts and turn-over—and discounts and turn-over pay.

Dealers are ordering now, and there is still
territory available for distributors

The Cork-Sealed Piston Ring Corp.
2332 Michigan Ave., Chicago

Factory, Denver, Colo.

Canadian Distributors
Purser Bull & Co., Ltd.
Toronto

USE THE COUPON

The Cork-Sealed Piston Ring Corp.,
2332 Michigan Ave., Chicago, Ill.

Send me full details and discount information
about Cork-Sealed Piston Rings.

Name _____

City _____

State _____

I am a Distributor Dealer
(Check which)

Are You Still Among

TRY-FITTING" was always expensive and uneconomical—two words that automotive plants cannot tolerate.

When Arrow-Head advanced the idea of furnishing automobile and truck engine builders with piston and pin assemblies complete, ground finished ready for the assembly line, engineers, production managers and purchasing agents quickly seized upon the new plan.

They saw that for them it meant the end of "try-fitting," that nuisance of piston and pin assembly. They saw that it would relieve them from the responsibility of maintaining highly skilled mechanics and the rigid inspection which piston and pin manufacture require. They saw that it meant the end of unbalanced deliveries, unbalanced and unnecessary inventories.

They saw that it centralized responsibility for perfect piston and pin assemblies upon Arrow Head, which has grown to a strong and essential unit in the automotive industry through doing one thing well.

If you are still among the "try-fitters," send us your specifications and let us submit samples of the complete piston and pin assemblies which have so simplified matters for other plants, perhaps competitors of yours.

"The most rigid specifications we have ever seen," said one engineer on going over our piston and pin inspection standards. "Piston and pins fully up to standards," the same engineer said after inspecting the Arrow Head product.

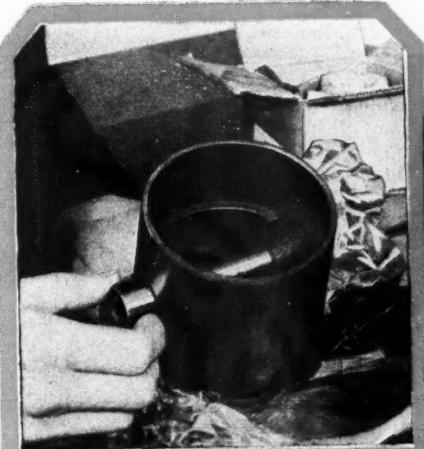


Arrow Head's most complete and flexible up-to-date line assures quick service on the 3,500 most-called-for fits and applications, including practically "all motors, all years, all models."

ARROW

Pistons ⚡ Piston Pins

the "Try-Fitters"?



"This is the complete Arrow Head piston-and-pin assembly, which relieves you of try-fitting and intricate machining or inspection of pistons and pins."



ARROW HEAD STEEL PRODUCTS COMPANY
Minneapolis, Minnesota

Head

Axle and Drive Shafts

“Cannon Ball” Baker

Smashes Records with TUTHILL SPRINGS



Hard Going Coast-to-Coast Record Breaking Run Proves Stamina and Riding Comfort of Tuthill-Titanic Springs on Ford Roadster.

“Cannon Ball” Baker drove his own standard Ford Roadster, equipped with Tuthill-Titanic Alloy Steel Springs, from New York to Los Angeles, in 5 days, 2 hours and 13 minutes.

Thirty-three hundred miles over mountain trails and desert sands—flooded streams and rough, mud roads—through sand and rain storms—in five days! Hundreds of miles of detours, literally a network of chuck holes and loose stones, were travelled, night and day at 35 to 45 miles per hour—in a Ford.

And the Tuthill Titanics took the punishment without injury—protecting car and driver that this epochal feat might be accomplished.

This is another proof of their amazing stamina, which makes it possible to guarantee Tuthill Hump-Center Titanics forever against center breakage.

Write for New Tuthill Spring Directory

It lists for quick reference, springs for every car, truck and bus, including all 1927 models announced, and going back to 1916. Sent free.

TUTHILL SPRING CO., 760 Polk Street, Dept. 2179, Chicago, Illinois



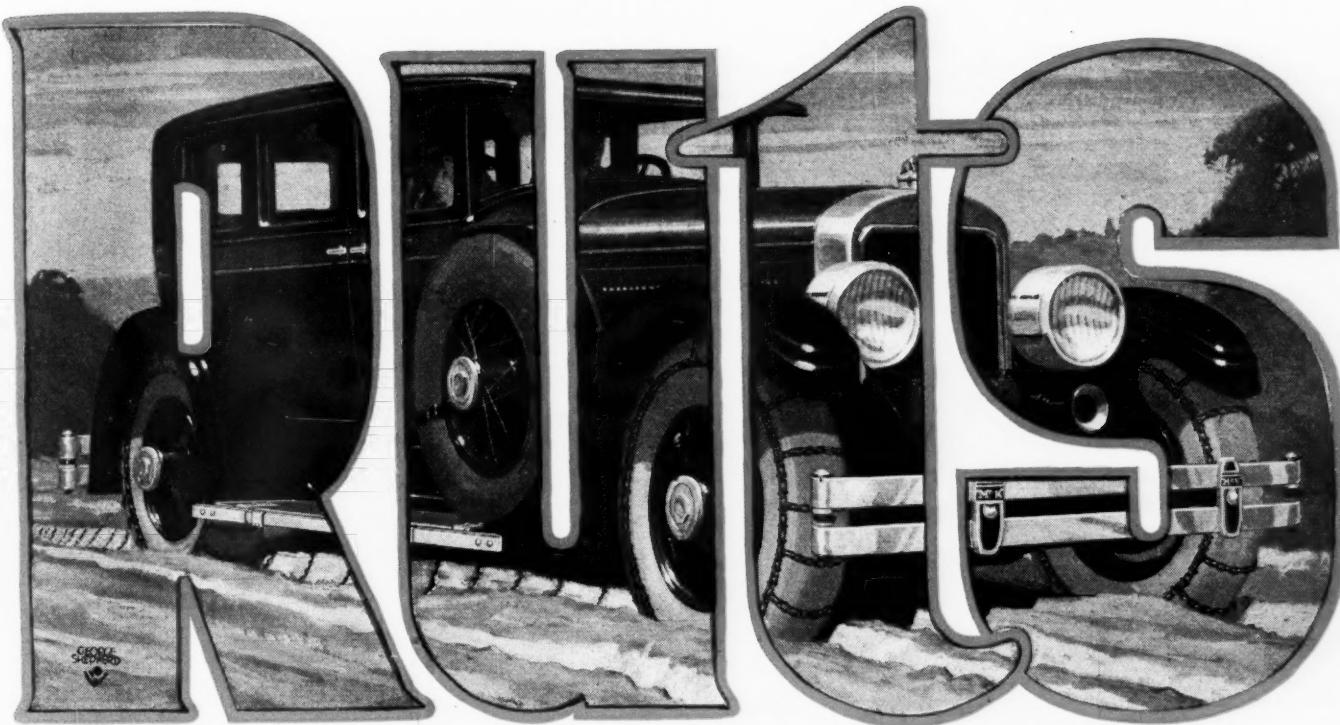
Baker Says:

“The Springs certainly received fearful slams. Nevertheless they gave fine service all the way and were in condition to do it over again when I finished in Los Angeles.

“I can heartily recommend Tuthill Springs to all Ford Drivers.”—“Cannon Ball” Baker

TUTHILL TITANIC

ALLOY STEEL SPRINGS



HELPING MOTORISTS Out of the Ruts

Months and miles of Chain SERVICE is the big thing that McKay Dealers sell! And they not only sell this SERVICE during the mud-sleet-ice-snow-rut season, but they sell the "preparedness" idea and do a year-round business.

The words "McKay" and "profit" are synonymous.

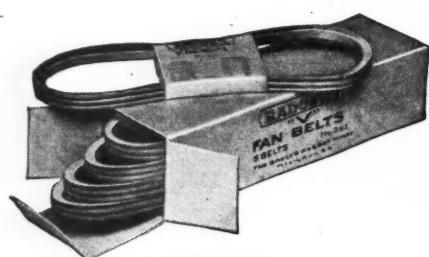
UNITED STATES CHAIN & FORGING COMPANY
UNION TRUST BUILDING · PITTSBURGH, PA.



MCKAY TIRE CHAINS



McKay suggests BUMPERS as well as CHAINS in the mind of the motorist. The rapidly increasing sales of McKay Red Bead Bumpers by dealers everywhere prove it.



BADGER
Cord Center
"V"-Type Fan Belts



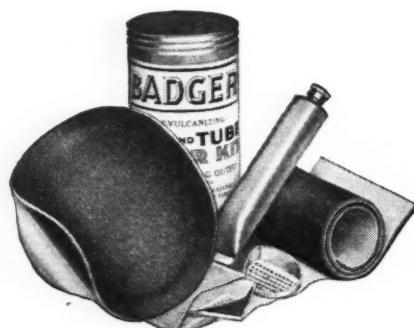
BADGER
Straight-Line Fabric
Flat Fan Belts



BADGER
Radiator Hose
3-ply Fabric—Red Cover
3-ft. Lengths



BADGER
Ford Hose Connections
Red Cover—Fabric
Fibre—Black



BADGER
Tire and Tube Repair Kit



BADGER
Tube Quick Repair Kit
Standard and Junior Sizes



BADGER
Tube Repair Kit
Shop Size



BADGER
All Cord—Gum Coated
Tire Plaster—4"
Counter Display

"V" Type Fan Belts

Flat Fan Belts

Radiator Hose

Ford Hose Connections

Tire and Tube
Repair Kits

Tube Repair Kits

Shop Repair Kits

Tire Plasters

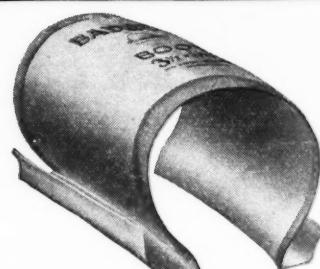
Blowout Boots

Patching Cement

Moulded Flaps

Flexible Disc
Couplings

Generator Tubing



BADGER
Fabric Blowout Boot

PRESENTING

BADGER

Automotive Rubber Accessories

THE completeness of this line of Automotive Rubber Accessories will at once be apparent from a study of the illustrations shown on these pages.

Whatever the requirements of the Trade may be, whether for Tire and Tube Repair Kits, in various types and sizes, Emergency Patches, Tire Plasters, Blowout Boots, Fan Belts, of various sizes and types, Radiator Hose and Connections, Repair Cements, etc.,—the demand may satisfactorily be met with the BADGER Line.

And in every feature of the line, QUALITY predominates, reflecting the high standing of the factory behind it. Furthermore, in price it is quite consistent, at the same time providing a substantial margin of profit to the Trade.

Factory distribution is effected solely through the Wholesale trade, and through which channel the Dealer trade is being served.

Requests for prices, samples, etc., from established Wholesale Distributors will receive most prompt attention.

THE BADGER RUBBER WORKS

MILWAUKEE, WISCONSIN



BADGER
Air-Drying
Solvent Repair Cement



BADGER
Tire Flaps
Individual Sizes 100-Foot Rolls



BADGER
Universal—Generator—Magneto
Flexible Disc Joints



New quarters for an old installation

Although Mr. A. W. Handy, large automotive dealer of Lansing, Michigan, knew he was soon to move to a new building, he installed the largest unit of Lyon Auto Parts Control. He knew he could move his Lyon Steel Equipment with no trouble, no loss.

Lyon Engineers assisted Mr. Handy in laying out this new store and had every Lyon unit been a new one the installation could hardly look finer nor be more efficient. Besides the units of shelving, there are the special display racks and the glass fronted Lyon Steel Counters that temptingly display the merchandise.

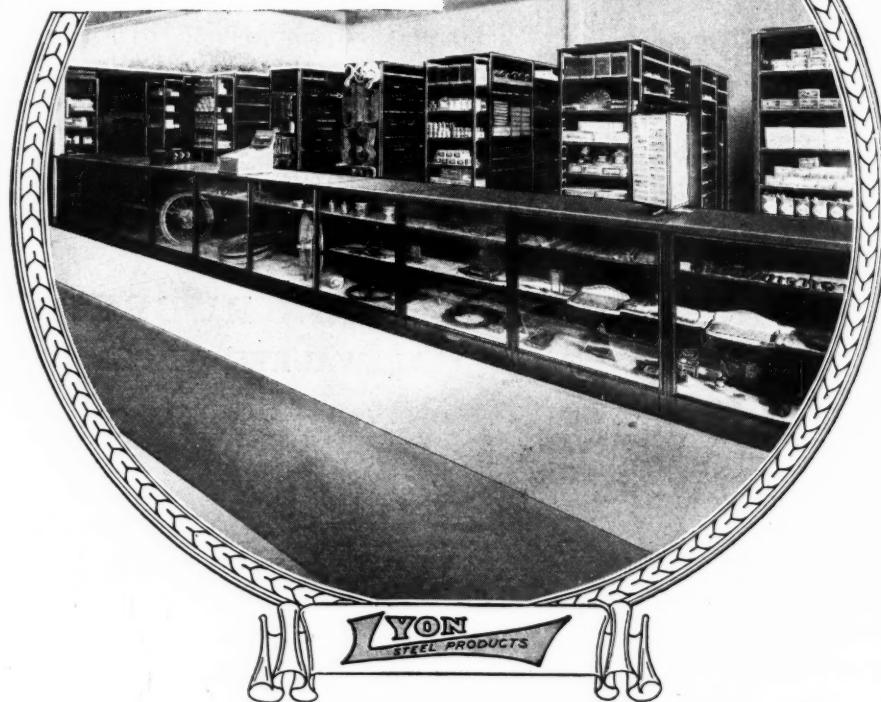
Lyon Auto Parts Control Systems make buying pleasanter and selling easier—and more profitable. There is a Lyon System that will fit your business like a glove and help you to keep it under visible control day by day. Write for complete information.

Lyon Metallic Manufacturing Company

Plant 2
Newark, N. J.

AURORA, ILL.

Plant 3
Los Angeles, Cal.



Leading Automotive Distributors Sell

LYON AUTO PARTS CONTROL

STORAGE SYSTEMS, COUNTERS, STEEL BENCHES, BENCH DRAWERS, TOOL BOXES,
DISPLAY RACKS, CABINETS, LOCKERS AND MISCELLANEOUS STEEL EQUIPMENT



The Bosch Tandem Attachment gives full vision to both front seat occupants—\$1.75 extra



YOU NEED THESE
BOSCH ELECTRIC
WINDSHIELD WIPER
ADVANTAGES

- 1—Electrically Operated. Leaves both hands free.
- 2—Unusual Power, ample for cleaning heavy snow.
- 3—Steady, Positive, Unvarying Speed.
- 4—Quiet, practically noiseless.
- 5—Compact, Unobstructed Vision.
- 6—Non-smearing, Spring pressure insures clean wipe.
- 7—Adjustable, up and down—in and out—adjusts to any windshield.
- 8—Rugged, Long in life, Free from trouble.
- 9—Tandem Attachment. Full vision—all can see ALL.
- 10—Bosch Made, Embodies Bosch Precision, backed by Bosch Service everywhere.
- 11—Economical, Negligible current consumption.
- 12—Independent Unit, Does not effect carburetion—Uneffected by engine speed.

Sell Real Protection!

Sell the dependable Bosch Electric Windshield Wiper -- the one that wipes clean, giving clear vision regardless of the storm's severity. The Bosch Electric Windshield Wiper operates off the battery -- using a negligible amount of current -- independent of engine speed, its pace never varies, never races or annoys, and doesn't stall. Feature the Bosch -- it is nationally advertised and being Bosch made, it satisfies your customers. Order today from your wholesaler or the nearest Bosch Branch.

Price \$9.50 complete - Tandem attachment \$1.75 extra

AMERICAN BOSCH MAGNETO CORPORATION
Main Office and Works:
BRANCHES: New York Chicago Detroit San Francisco

Springfield, Mass.

BOSCH ELECTRIC Windshield Wiper

ON HILLS



One Ford in your community equipped with Bosch Type 600 Ignition means a dozen more sales. It supplies what every Ford owner wants -- greater engine flexibility, starting alertness and constant, FULL power for climbing hills with less need to use low gear. Easily sold, quickly installed, Bosch Type 600 for Fords will carry your profits up into bigger figures. Advertised everywhere. Order today.

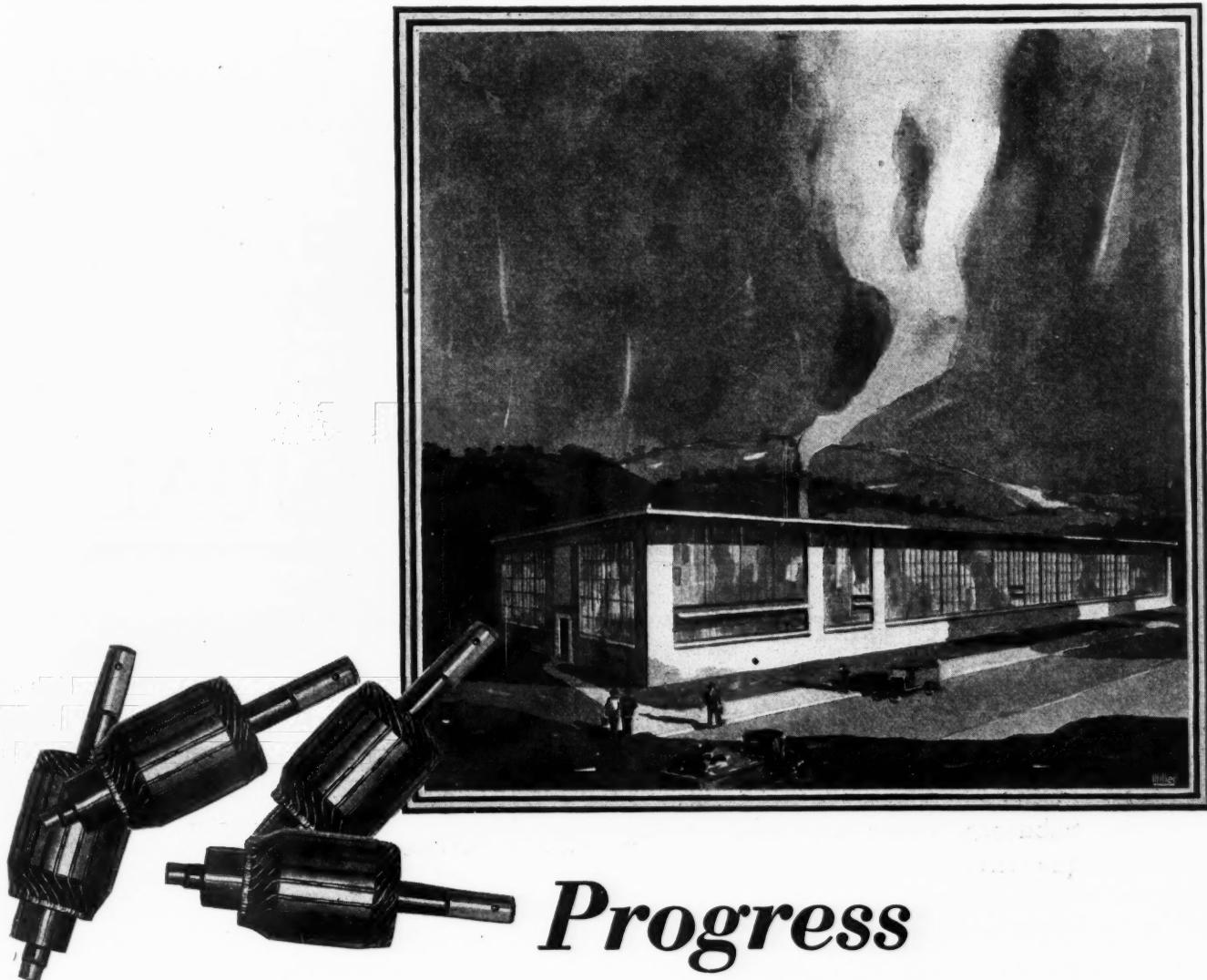
Price \$12.75

AMERICAN BOSCH MAGNETO CORP.
Main Office and Works: Springfield, Massachusetts
BRANCHES: New York Chicago Detroit San Francisco



**TYPE 600
BOSCH
Ignition
for
FORDS**





Progress that Speaks for the Product

THE amazing sales progress Fredericks Rewinds have made in the past year clearly indicates armature buyers are looking at rewound armatures in a new light. Within this period, new thousands became Fredericks customers. They have discovered the *difference* in rewound armatures.

Fredericks Rewinds alone are the equal of new armatures. Only Fredericks Rewinds are built like new armatures. A Fredericks Rewind requires more than fifty operations. Only skilled armature men touch a Fredericks Rewind. These men use special machines, some designed and patented by us, in their work. As each operation is

completed, careful tests eliminate all possibility of failure. In new armatures and in Fredericks Rewinds you will find both ends of an armature insulated—Plus value!

Operating on a large scale, Fredericks alone can afford this quality at a low price. In this new light, it is no longer necessary to deny yourself the greater profits Fredericks Rewinds pay. Mail the coupon now for complete details and prices.

**H. M. Fredericks Company
Lock Haven, Pa.**

Gentlemen: Please send the booklet giving prices and details of Fredericks Rewinds.

Name _____

Company _____

Address _____

FREDERICKS
Rewinds

Extra Copies of the **MOTOR AGE** 1926 **FLAT RATE MANUAL**

Can Now Be Secured at
50c Per Copy

An extra supply of the MOTOR AGE Flat Rate Manual which appeared in the May 6, 1926, issue has been printed and is now available to Distributors, Dealers, Trade Associations, Schools, etc., who desire extra quantities.

— *First order received calls for 50 copies* —

"Motor Age,
Chicago, Ill.

May 10, 1926

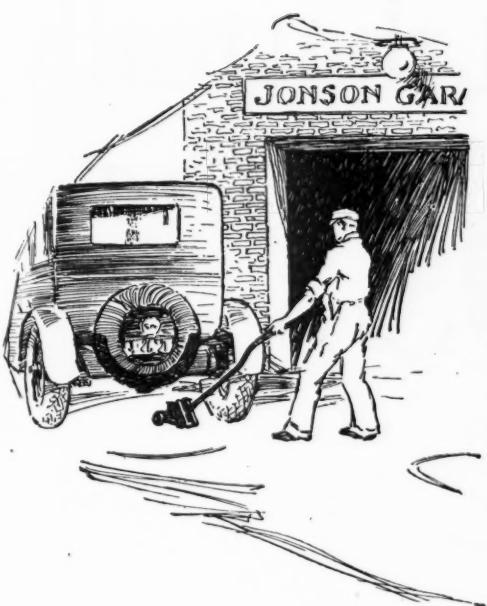
Gentlemen:

Your issue of May Sixth has just reached us and we want to congratulate you on its appearance and the wealth of extremely valuable material that it contains.

Among the many things that appeal to us is the new flat rate manual. We hope that you are planning to publish this in pamphlet form, so that copies will be available for distribution among garages. We are called upon for data of this kind continually and can use fifty of these to excellent advantage if they will be available."

Please address all orders or inquiries pertaining to this Flat Rate Manual to:—

MOTOR AGE
Subscribers' Service Dept.—5 So. Wabash Avenue
Chicago, Ill.



Specifications

No. 715 A Walker Lift-A-Car, height cap 7½ in., raise 8½ in., extension rack 3 in., extended height 19 in., capacity 1 ton, weight 50 lbs.



Any garage or service station that is not equipped with a Walker Lift-A-Car has yet to learn with what ease and speed the corner of any car can be raised and lowered, how low points on cars with balloon tires can be reached, and how fenders, bumpers, spare tires are cleared by its short stroke extension handle . . .

Lifting cars is not a once a week job in the busy garage, it is almost constant and should be done by a safe, sturdy piece of equipment . . This is what I guarantee Lift-A-Car to be, and in this statement I have the backing of over 20,000 users . .

Willard Walker

President
Walker Manufacturing Co.
Racine, Wis.

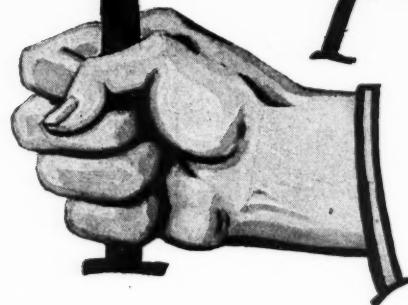
Walker Jacks

"Dependable in Service"





A fan belt that really Grips *the* pulley



That's Farran-oid.

It has tremendous strength.

Due to the flexibility of the tape backbone and the high grade cover we employ, the belt literally wraps itself around the pulleys.

No danger of overheated motor due to slipping fan belt. Farran-oid Fan Belts are also heat, oil and waterproof. They won't stretch. They are very long-lived.

Dealers like to sell Farran-oid. They know in advance the long satisfactory service they will give. They build good-will and permanent trade for you.

Two types—Herringbone Flat Endless
or Dual-flex Molded Cable V-type

THE FARRAN-OID COMPANY, Akron, Ohio

Farran-oid Products

Fan Belts—Radiator Hose—Garage Air Hose
—Car Washing Hose—Tire Flaps—Blowout
Patches—Tube Patches—Ford Floor Mats

The Choice for Honing

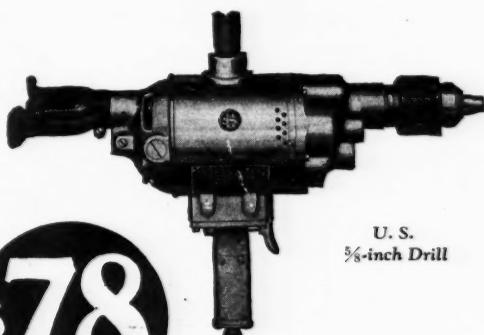
*This One for Use with
Ammco, Hall, and Other
Spring Expanded Hones*



U. S. $\frac{1}{2}$ -inch
Special Drill

\$58

*This with Hutto Hone and
Master Cylinder Grinders and
Other Positive Set Hones*



U. S.
 $\frac{5}{8}$ -inch Drill

\$78

Compare them point by point—design—construction—price—applicability. Is it any wonder that U. S. Drills are the leaders in performance for use in honing as in other jobs? They were the original drills—and always have been first to embody features of proven standards—SKF Ball Bearings included. Thousands of automotive garage-men and mechanics point with pride to the long and satisfactory service which U. S. Drills have given them. Buy your next portable electric drill by mechanical comparison and performance—then you'll choose a U. S. Drill. Don't overlook the prices in your comparison, too. Have your jobber send a U. S. Drill out today.



U. S.
 $\frac{1}{4}$ " and $\frac{5}{16}$ " Drill

\$30

The popular three ball bearing drill. Handy and practical for hole drilling in close corners—for driving carbon cleaning brushes—tire rasps.

Operates at 1,000 r.p.m. under full load; weighs only $5\frac{3}{4}$ pounds. Get complete specifications now from your jobber, or write us.



Write for Catalog "H"

THE UNITED STATES ELECTRICAL TOOL CO.

Oldest Builders of Electric Drills and Grinders in the World

Cincinnati, Ohio, U. S. A.



Portable Electric Drills
Grinders-Polishers

Export Sales Representatives—WESTINGHOUSE ELECTRIC INTERNATIONAL CO.—150 Broadway, New York, N. Y.

"Write Today!"



It often happens that the automotive merchant who writes today, gets to be first in his territory to sell a product that brings in valuable profits.

At least, in every instance, it gives him an opportunity to decide to the best of his judgment whether or not he wishes to take on a new line.

The matter of staying in business at a profit is just important enough that advantage should be taken of every new possibility. Close investigation often reveals a profit maker.

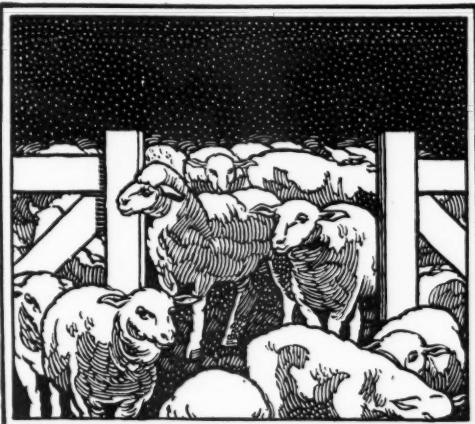
*Write today. Someone else
may wire tomorrow.*

MOTOR AGE

5 SOUTH WABASH AVENUE
CHICAGO - - - ILLINOIS

"OGDEN—*This is* OAKLAND

We want 10,000 *lambs*"



LAMB WAS at a premium. An Oakland, California, meat-packer learned that a large number of lambs were to be put on the market in Ogden, Utah. He got in touch with the commission man by long distance telephone. In a five-minute call he purchased close to 10,000 head. Price, about \$90,000. Cost of the call, \$6—a saving of at least \$150 in traveling expenses. And it enabled the shipment to be started immediately.

Two MILLION times each day, America's toll and long distance lines are called upon to get something done, to make some saving of time or expense. And the telephone carries the voice and purpose of the executive across states and over the nation just as readily as it does within the limits of a city or a neighborhood. Thousands of concerns are finding ways to let Long Distance calls lessen the wastes of delay and postponement.

Have you taken stock lately of the various things Long Distance might accomplish for you? Is there something you need quickly at the most advantageous price? The telephone will reach the man or concern that has it for sale. Shipment can be made without waiting for the

exchange of visits or correspondence. You can go from one market to another in various parts of the country, without leaving your office. Likewise, if you have something to sell, the telephone will reach a buyer, no matter how busy or how far away he may be. Long Distance will accomplish your purpose in less time, and at an actual saving of money.

Our Commercial Department in your own town will gladly assist you in laying out a program of long distance service suitable to your organization. Ask a representative of this department to call upon you, without charge. In the meantime, why not make a test of what distant calls can do? What buyer or seller would you like to talk with, now? . . . *Number, please?*

BELL LONG DISTANCE SERVICE



KESTER Self Fluxing SOLDER

Simple Safe & Sure
Requires only heat



KESTER Acid-Core SOLDER

For general soldering and heavier electrical work. Self Fluxing—"Requires Only Heat." Standard size No. 3, about $\frac{1}{8}$ inch in diameter, runs about 30 feet per lb. Packed on 1, 5, 10 and 20 lb. spools. Special gauges also available.

KESTER METAL MENDER

The Household Solder



Here is the small package of Acid Core Solder. So simple anybody can use it. Ten cans about $\frac{1}{4}$ pound each are packed per carton. Ten cartons (100 cans) to the case lot.

KESTER Rosin-Core SOLDER

For very delicate electrical and radio work. Contains highest quality metals and rosin flux. Standard size about $\frac{3}{32}$ inch in diameter, runs about 50 ft. per lb. Packed on 1, 5 and 10 lb. spools and 18 in. sticks in 5 lb. boxes. Special gauges also available.

KESTER Radio SOLDER (Rosin Core)

Safe, Sure and Simple—approved by radio engineers. Harmless to the most delicate parts. Absolutely non-corrosive flux makes low-loss joints. Ten cans about $\frac{1}{4}$ lb. each per carton. Ten cartons (100 cans) to the case lot.

CHICAGO SOLDER COMPANY

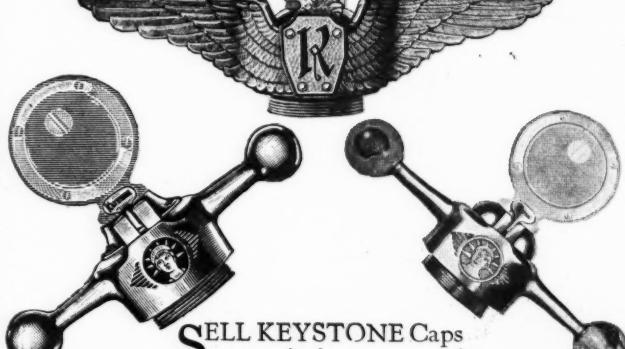
4203 Wrightwood Avenue, Chicago, U. S. A.

Originators and world's largest
manufacturers of Self Fluxing Solder

Your Jobber Can Supply You

KEYSTONE
EAGLE
\$6.00

THE EAGLET
Smaller size
\$4.00



KEYSTONE
SENIOR
\$4.50
Junior \$3.50

SELL KEYSTONE Caps not only for reasons of their outstanding beauty and proven mechanical features, but as permanent protection for either motor meter or ornament.

The KEYSTONE Line assures quick turnover and real Cap profits.

*If your Jobber can't supply you
write for discounts direct*

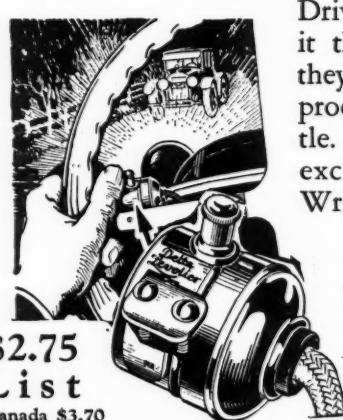
THE NORLIPP COMPANY, 568 W. Congress St., Chicago

KEYSTONE
SELF-LOCKING
RADIATOR CAPS

Announcing Delta-Levolier Dimming Switch

MAKES DIMMING a joy. Mounts on spoke of steering wheel near rim. No need to move either hand from wheel. Change brights to dims with a flip of the thumb. Dims headlights and turns on roadlight—or any combination you want—in the same flip. Fascinating to operate; put one in the hands of a motorist and you've made a sale.

Drivers who use it consider it the handiest accessory they have on their cars. Fool proof. Reliable. Won't rattle. Fully guaranteed. An exclusive Delta product. Write for full particulars.



DELTA ELECTRIC
COMPANY
903 Delta Blk., Marion, Ind.

\$2.75
List
Canada \$3.70

Delta-
Levolier

EDITORIAL

January 29, 1925

Get the Lubricant to the Bearings

It is quite often neglected. Some are put to the tires in summer. Some are entirely unsuitable for winter usage. And design and construction of bearings are entirely unsuitable for winter driving.

Consider a car being operated in zero weather. It is driving to the house of a friend or the owner. The street is slushy. The differential is put with lubricant that was suitable for summer use. The low temperature congeals the summer lubricant until it is almost a solid mass.

The engine is started, low gear is engaged, then second and high and the car is away at thirty miles an hour. What happens down there in the differential housing? The ring gear with the torque of the engine behind it has to pull its way through a layer of solidified grease or perhaps ice. A channel as wide as two fingers and as deep as the height of the lubricant is cut through to allow the gear to rotate. There could be circulation because there was no fluidity and the front pinion

French Makers Slow Down

Stands in sharp contrast with that of the United States. Reports received from French automobile manufacturers indicate that output has been carried to a point considerably in excess of demand. The result is that French makers have called in near half in production and schedules will be held down until consumption has had a chance to absorb the surplus.

As present, therefore, French makers have large stocks of cars in warehouses, while in the United States the warehoused stocks of producers are relatively low. The American industry is in much the same shape than our sister country across the water. Our factories are flooded with邀约 customers and if great demand does not appear, factories stand just now and as policy suggests, we should not have a repetition of the frantic liquidation characterizing the overproduction early last year.

Honest Dealing

FAIR and square dealing and the offering of a full dollar's worth of merchandise and service for every dollar spent with them composedly's president in an address to members of the gatherings of Chicago show season. Honesty in business can be too much stressed and it has been most satisfactorily demonstrated that short-sellers and dishonest merchants are short lived in the field of automobile merchandising. This applies to the sale of maintenance as well as to the sale of motor vehicles. The factory must set up to the delivery of the full dollar's worth all up to the dealer. The short measure of his maintenance department is a discredit to his establishment and a reflection against his business integrity.

DIXON'S 677

FOR TRANSMISSIONS AND DIFFERENTIALS

Meets all requirements of a year-round lubricant.

Not affected by extremes of heat or cold, it will not stiffen and channel in cold weather and leave gears and bearings unprotected.

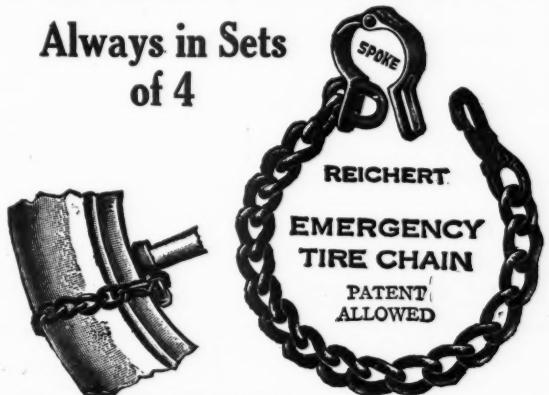
Dixon's 677 reduces power losses, eliminates strain and provides better and longer lubrication.

Write for Booklet 82-G. and Dealer Proposition

Joseph Dixon Crucible Co.
Jersey City, N. J.

Established 1827

Always in Sets
of 4



REICHERT'S
Imperial Emergency Mud & Snow Chains
Make New Winter Sales

Lots of people object to driving with chains—until they get stuck. Then they want them plenty. These drivers make a tremendous market for REICHERT'S Imperial Emergency Mud & Snow Chains. They go on after the car is stuck—and bring it out! There's a truck model, too—both big sellers.

STANDARD TIRE SIZES		
Size 1 1/2	For 3 and 3 1/2 inch tires	Set \$3.90
Size 2	For 4 and 4 1/2 inch tires	Set 4.50
Size 3	For 5 and 5 1/2 inch tires	Set 5.60

(Note Size 3 will also fit 4.95, 5.25, 5.75 Balloon Tires)

BALLOON TIRE SIZES		
Special 1 1/2 A	For 4.40 tires	Set \$4.20
Size 3	For 4.95, 5.25 and 5.75 tires	Set 5.60
Size 4	For 6.20, 6.60 and 6.75 tires	Set 6.10
Size 5	For 7.30 tires	Set 6.70

IMPORTANT! State size when ordering.
Liberal discounts.

IMPERIAL BIT & SNAP CO.

Racine

Wisconsin

"John Crane"
Auto Pump Packing
Metallic
Standard
Equipment
on 40% of all Cars



The same packing the motor builders use. This one style will repack any pleasure car, truck, tractor or bus water pump. "John Crane" does not wear the rod; its resilience absorbs rod vibration; it gives long, efficient service. Order direct using coupon.

**Now Available
for Replacement
Service—only one style needed**

Crane Packing Company:
Motor Replacement Division

Kindly send C. O. D. Garage Size Packages of "John Crane" Style 112. Cost each \$2.50 net.

Name.....

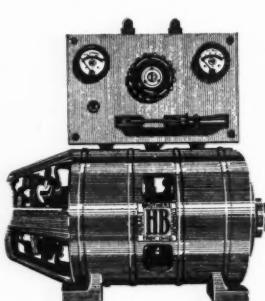
Address.....

Attention of.....

CRANE PACKING COMPANY
1805 Cuyler Ave., Chicago 109 Broad St., New York

30 Days' Free Trial

\$150 to \$300 Monthly Profits
Reported by HB Users Everywhere
 Start a Big Profit Making Business of your own—"One Day Battery Charging." Requires small space and practically no investment. Anyone can successfully operate. Charges batteries in 1/3 the usual time at $\frac{1}{2}$ the cost. Every car owner a customer. Recommended by leading battery manufacturers and approved by U. S. Bureau of Standards. Try it out for thirty days at our risk, under absolute money back guarantee. The HB One Day Battery Charger will pay for itself on easy monthly payment plan with practically no expense to you—and bring you a handsome profit besides. Built by Successful Manufacturers Since 1893. Write for full particulars in Bulletin M. NOW!



Hobart Bros. Co., Box AY11, Troy, Ohio



Your Requirements

We are equipped to produce Bearings to your exact specifications and requirements. May we study your Bearings problems?

Bearings Company of America
 Lancaster, Pa.

Detroit Office
 1012 Ford Bldg.

SNELL Super Heater

"Motordoms' Greatest Hot Air Heater"

Produces more heat than ever experienced with any other heater. Adjustable to temperature desired, ventilates as it heats, eliminates motor odors. One model for all cars.

Duplex—Rimplex—Triplex Second Spare Tire Carriers

The complete line of tire carriers for all types and sized demountable rims.

WRITE TODAY for descriptive literature and attractive dealer and distributor franchise.

TRIPP-SECORD & CO., Detroit, Mich.

MANUFACTURERS OF AUTOMOTIVE NECESSITIES

Buy SMOOTH-KUT EXPANSION REAMERS

(TRADE NAME REGISTERED)

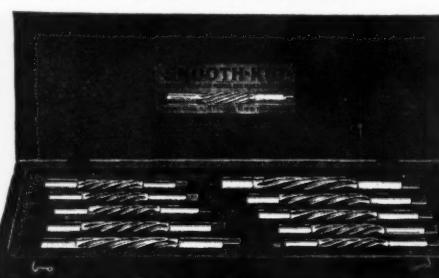
With FULL spiral flutes that shear metal clean.

They cut a round, smooth hole, without chatter—keep an edge longer and are reground by us at cost.

Patented April 7, 1925.
 Avoid inferior imitations.

Order through Jobber.

Millersburg Reamer & Tool Co., Millersburg, Pa.



CANTON

Portable Crane and Hoist
 Is Now Equipped with Safety Friction Load Brake



The purpose of the Canton Portable Crane and Hoist, equipped as it now is with the new Safety Friction Load Brake, is to make even more money for service and repair shop men, than ever before. The Service Friction Load Brake holds the load at any point, and makes it impossible for the load to get away from the operator. On all new models and for all models already in use. Write for a copy of the illustrated booklet M. A., and additional literature describing the outfit. It will show you the way to better profits.

The Canton Foundry & Machine Co.
 Canton, Ohio
 New York Office—303 East 15th Street

The most successful merchandisers keep at it every week - -

in

MOTOR AGE

The profitable line
 that moves fast

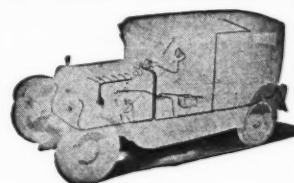
FULTON

Accelerator for Fords—Pedal Pads for Fords and all cars—Accelerator Pedal for all cars—Aermore Exhaust Horn—Hudson's Crankcase Repair Arm for Fords—Copperhead Socket Wrench, etc.

The Fulton Company, 732—75th Ave., Milwaukee

Packard Cable

The Packard Electric Co.
 Warren, Ohio

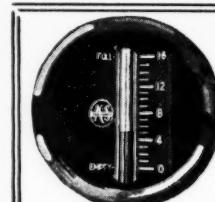


SPEE-DEE CLEANS UP for Dealers



Results in quick stock turn-over, with small investment and liberal profits. Without water it removes grease, stains, etc., from hands, cloths, upholstery, paint or enamel. Indispensable in shops, service stations and car kits. List 35c.
 Write for discount details.

States Chemical Company
 703 W. Fulton St., Chicago, Ill.



The K-S GASOLINE Telegage



A gasoline gauge on the Dash. Note our half page advertisement in the Saturday Evening Post, November 27th. Write for description and proposition to the trade.
 KING-SEELEY CORPORATION
 298 Second Street Ann Arbor, Michigan
 Chicago Branch, 2450 Michigan Boulevard

A Sensation —the Stop-Light that Flashes

THE new Delta-Bojac Flasher Stop-Light. A startling signal that stabs the darkness 50 to 150 times a minute. Increases effectiveness at least 300% by sending out penetrating flashes instead of steady glow. Basically right—incorporating principle of most highly developed warning signals—like flasher lights at R. R. crossings. Its action creates talk everywhere—resulting in universal sales. Positive warning. Fully guaranteed. Unusual and highly distinctive dome glass lens. Ask your distributor, or write us, for full information and details of novel mechanism.

Delta Flasher Stop-Light

Furnished Complete
with
Flashing Mechanism,
Pedal Switch, etc.

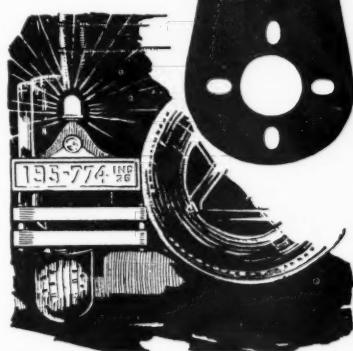


DELTA ELECTRIC
COMPANY
903 Delta Block, Marion, Ind.

\$5.50 List COMPLETE
Canada \$8.00
mechanism, pedal switch and stop-light with all parts to install including wire. Model 151, Amber Lens; Model 152, Red; Model 153, Green.

Flashing Mechanism only, with which to convert ANY conventional stop-light into a FLASHINGSTOP **\$3.50 List**
light, Model 150 Canada \$5.00

Delta-
Bojac



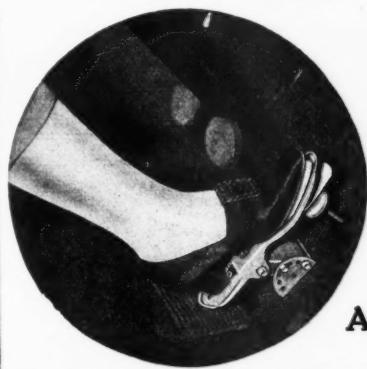
There Simply Isn't Any Better Flux Made Than Rubyfluid!



A complete substitute for dangerous acids, Zinc Chloride, Salammoniac and other mixtures commonly used as a flux. Ruby Fluid is quick acting, anti-rusting and is always ready for instant use. Ruby users include the foremost industries of the country. Send for generous Free Sample

Rubyfluid
COMBINATION
SOLDERING AND TINNING FLUX

THE RUBY CHEMICAL CO.
68-70 McDowell Street Columbus, Ohio



The ADAMS Adjustable Foot-Rest

One of the standbys, for a certain percentage of regular sales, in paying volume, the year around.

An important and profitable stock item that turns over.

ADAMS MFG. CO.
Galesburg, Ill.

3305 Miles in Five Days—Two Hours—Thirteen Minutes
with a Ford Car sealed in high gear without any overheating

This wonderful record was made by "Cannon Ball" Baker—World's Record Breaker in crossing the continent from New York to Los Angeles.

HOW COULD
SUCH SPEED BE
MAINTAINED
WITH A FORD
WITHOUT MEET-
ING OVERHEAT-
ING TROUBLE?
JUST BECAUSE A
G. B. IMPELLER
WAS USED.

WHAT IS A G. B.
IMPELLER? —
THE MOST EFFI-
CIENT, MOST
POWERFUL AND SIMPLE DEVICE SO FAR KNOWN
THROUGH THE WORLD TO PREVENT YOUR FORD
FROM OVERHEATING.

The G. B. IMPELLER makes the engine brim with power; insures smooth running of the Ford car and truck, reduces evaporation and cuts down replenishing water in radiator about 60%. Increases efficiency and prolongs your Ford's life by preventing all troubles due to overheating. Saves gas and diminishes repair bills.

NO HILL TOO STEEP—NO DAY TOO HOT WITH THE G. B. IMPELLER because:

Unlike the regular four blade Ford fan that rather mixes the air within the hood, the G. B. IMPELLER is a 24 bladed disc fan that gives static pressure and insures a powerful flow of air through the radiator and out of the hood. This action positively keeps the Ford engine cool, no matter how hard you will run it and relieves the owner from the overheating troubles that everybody knows so well. No other fan nor auxiliary water-pump can give equal insurance against overheating.

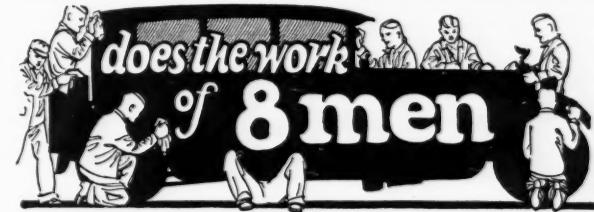
Enthusiastic testimonials coming in every day from our customers evidence this.

The Impeller can be installed by anyone in a few minutes by just removing the regular fan and putting this device in its place.

G. B. IMPELLER—PRICE ONLY \$3.00

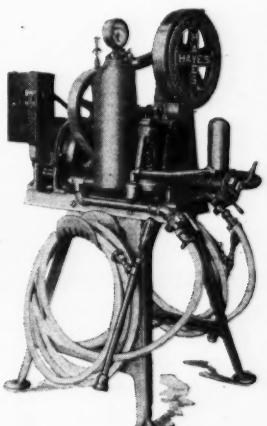
MAIL YOUR ORDER TODAY

Unlimited guarantee Regular Trade Discounts
DE BOTHEZAT IMPELLER CO., INC.
1922 Park Avenue Dept. A New York, N. Y.



Any model in the complete "Speed-Spra" line will double the output of any wash rack, cut labor in half, reduce water bills, save washing solution, sponges and brushes. This speed and these economies double wash rack profits.

2 Gun 4 Man "Speed-Spra"



turns out more cars on two racks than eight men can on four the old fashioned way—and do it better. 2 men to wash, 2 men to chamois, is all the crew needed for a big volume wash rack business.

No other mechanical washer is like "Speed-Spra." Duplex pump; "Velvet-Spra" Gun; 4-way valve and Hayes governor are order getting selling points you need in wash rack equipment.

Get the FACTS

Write for bulletins on all sizes of "Speed-Spras." Let us show you how "Speed-Spra" will double your wash rack profits.

Hayes Pump & Planter Company
819 Sixth St. Dept. 19 Galva, Ill.



The tire with the Gum Weld Cushion has become the most favorably talked about heavy-duty tire in America.

So it pays to be an INDIA dealer.

INDIA TIRE & RUBBER CO.,



AKRON, OHIO

DILL INSTANT-ONS

Dust and Valve Cap
Off or On in 5 Seconds

The Dill Manufacturing Co. Cleveland, O.



Mallory Ignition Coil

Has two primary windings instead of one. Gives a hotter spark, makes easier starting, gives more power, quicker pickup and more mileage. Try it on a sluggish motor. Write for full particulars.

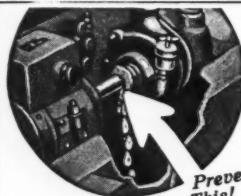
The Mallory Electric Corporation
Toledo, Ohio

GATES VULCO

Fan Belts and Radiator Hose

Made By

The World's Largest Makers of Fan Belts



Stops Pump Shaft Leaks
and Saves the Winter Solution

Conneaut Plastic Metallic Packing molds in the fingers to fit stuffing-boxes of any size or shape. It is a repair for the worn shaft and loose bushing. At your jobbers; if not write us.

1 lb. can. \$1.75 per pound
5 lb. can. \$1.60 per pound

THE CONNEAUT PACKING CO.
Conneaut, Ohio

Transmissions
and Clutches

FOR
BROWN-LIPE
GEAR CO.

Trucks, Busses
Passenger Cars

QUICK SERVICE ON COMPLETE UNITS OR PARTS

BROWN-LIPE GEAR CO.

Syracuse, N. Y.

Let us
send our
profit-
boosting
plan.
It's Free.



CADILLACS—PACKARDS

1926 CADILLAC CUSTOM BUILT PHAETON. 7 Pass., Full Equipped, Like New. Only.....	\$2150
1924 CADILLAC V-63 COUPE, 5 PASS.....	\$1550
1926 PACKARD PHAETON (3-26). Six Cylinder, 5 Pass. Sport Touring. Used 90 Days. Cost, Including Equipment, \$2900. Our Price.....	\$1750
1925 PACKARD ROADSTER STRAIGHT 8 (1-36). 4 Pass., Rumble Seat, Full Equipment. Price.....	\$1975
1925 PACKARD STRAIGHT 8 SEDAN (2-43). A 7 Pass. Sedan. Refinished Packard. Blue. Price.....	\$2650

Write for Full Descriptions

Eddie D. Meyer, 2317 Michigan Ave., Chicago



Valve Face Grinding Machine

Get a demonstration of Sioux before you buy any valve grinding machine. GUARANTEED FOR A LIFETIME.

Your Jobber Sells It

ALBERTSON & CO.
Sioux City, Ia.



QUALITY—PROFIT—TURNOVER

American
Hammered
Piston Rings

Baltimore, Maryland
American Hammered Piston Ring Company

Kawneer STORE FRONTS

Write for Special Book—Garage Front
THE KAWNEER CO., 3724 Front St., Niles, Mich.

free
write for
your copy

The Book
"AIR PROFITS"
Shows how to get
more work out of
an air compressor.
How to use compressed
air for
many pay jobs.

BRUNNER MFG. CO.
UTICA NEW YORK

BRUNNER
AIR COMPRESSORS



THE "BAT" Super-Charger



A practical system of super-charging for
passenger cars, trucks, tractors, marine
engines, aviation engines, stationary en-
gines, etc. Simple, easy installation.
Practical. Prices range as low as \$7.50.

P. H. Webber Company
Racine Industrial Plant, Building No. 12, Racine, Wisconsin
Manufactured and sold under license of P. J. F. Batenburg, Racine, Wis.

NEXT WEEK

—is the time to read next week's issue of MOTOR AGE,
as you are reading this week's issue this week.

MOTOR AGE
5 So. Wabash Ave.

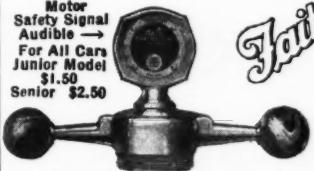
Chicago, Ill.

Thermoid
Hydraulic Compressed
Brake Lining

FROM THICK
TO THIN
DOWN TO THE
LAST PLY
IT HOLDS

HALL HONE \$35.
at your
Jobber's
Gets Both the Oval and the Taper

Faith Marble Onyx
Locking Cap
For All Cars
Junior Models \$3.50
Senior Models 4.50
Ask Your Jobber
FAITH MFG. CO., INC.
2533-39 N. Ashland Ave. Chicago, Ill.



**Have you seen the new
Scranton Battery-Cap-Tester**
A new idea. Replaces vent plugs. Always ready for instant testing. Reduces four operations to one. Also tells when water is needed. A quick seller at a good profit. Set of three retails at \$2. Order at once from jobber and meet demand from national advertising.
THE SCRANTON GLASS INSTRUMENT CO.,
SCRANTON, PA.



The Burgan Cotter Pin Extractor

Works Like Magic

It goes in anywhere, grips the cotter pin—snaps it out in a jiffy—holds it until released. You don't have to pull or twist. Just squeeze the handles. It's a great tool!

Write for prices and details

THE BURGAN CORPORATION
9 So. Clinton St. Chicago, Ill.



Here's the Way to Sell Tire Chains

Let the package they come in display them. By making them easy to buy, you automatically make them easy to sell. Dealers like the WESCO carton. Write.

Western Chain Company
Chicago, U. S. A.

GENERAL MOTORS BUILDING

Broadway to 8th Ave. ~ NEW YORK ~ 57th to 58th Street

Renting &
Managing Agent
CUSHMAN &
WAKEFIELD, INC. 50 East 42d Street
New York City



More
Power
Less
Fuel

Zenith - Detroit Corporation, Detroit, Mich



The SO-LO JACK

\$6.00 Retail

West of Mississippi \$6.50
4 3/4" LOW-HIGH 15 1/4"
The REAL Balloon Tire Jack
All Steel Construction
POWERFUL-STURDY-EASY TO
OPERATE

A Sure Seller with your Trade
SO-LO JACK CO., Inc.
108 Massachusetts Ave., Boston, Mass.

**The Original
Bosch**
Franchise details for selling ORIGINAL BOSCH
Automotive Equipment will be sent to any Dis-
tributor, Dealer or Service Station on request.
ROBERT BOSCH MAGNETO CO., Inc.
109 West 64th Street New York, N. Y.



ORIGINAL
BOSCH units
bear the full
name, Robert
Bosch, and
the trade
mark shown
at left. These
are the identi-
fications of
Bosch qual-
ity—famous
since 1887.

RACO Cast Aluminum Step Plates

THEY sell fast as they improve any car. Made of number one virgin metal. No scrap nor remelt metal used. Beautifully polished. Material and workmanship fully guaranteed. High quality black rubber mat and nickel plated screws or stove bolts furnished with each plate. Many sizes and styles. Write your jobber today for price lists and discounts.

Reynolds Aluminum Company
Dept. B-9 New Washington, O.

The Gill Combination

THE GILL MFG. CO.,
8300 So. Chicago Ave., Chicago, Ill.



WIRE OR WRITE US FOR NEW OR USED TIRES — PARTS — ACCESSORIES

IF IT'S FOR AN AUTOMOBILE WE HAVE IT!
SEE OUR NEXT DISPLAY IN MOTOR AGE, DECEMBER 2

STATE AUTO PARTS CORPORATION
2011-13-15 S. State St., Chicago, Ill.

WEL-EVER

"OIL CONTROL" PISTON RINGS

The Motor Necessity That Has Made Good

Backed by Seven Years' Satisfactory Service

THE WEL-EVER PISTON RING CO., TOLEDO, OHIO
Sold most everywhere. If your dealer cannot supply you write us.

ROSE TIRE PUMP

PROTECTOMOTOR
REG. U. S. PAT. OFF.
Perfect Positive Protection
Filters all dust, sand and grit out of air supply
to carburetor and motor. Write us for facts.
STAYNEW FILTER CORPORATION
Rochester, N. Y.

99⁹/₁₀
EFFICIENT

CLASSIFIED ADVERTISING

PATENTS & PAT. ATTORNEYS

C. L. PARKER

Ex-Examiner U. S. Patent Office
Attorney-at-Law and Solicitor of Patents

McGill Building, Washington, D. C.
Patent, Trade Mark and Copyright Law

FOR SALE

"How to Drive a Sliding Gear (Shift) Auto-
mobile," 25 cents, postpaid. Walter L. Dunn,
229 Peachtree Street, Atlanta, Ga.

WANTED

Green Engineering Co.'s "Super-Ford"; Fron-
tenac; Laurel, Box 6285, Motor Age, 5 S.
Wabash Ave., Chicago, Ill.

BUSINESS OPPORTUNITIES

FOR SALE—Wholesale automobile accessory
house in Oklahoma. Has large and well estab-
lished business. Good reason for selling. Box
6284, Motor Age, 5 S. Wabash Ave., Chicago,
Ill.

If you don't find what you want here
your advertisement here will find it for
you.



SHAFER

"Self Aligning"

ROLLER BEARING

PATENTED

"Complete Satisfaction"

"It is natural that I should express my appreciation for the extraordinary good service that the Shafer Bearings have given us. We have about 2,000 cars in this territory equipped with Shafer Bearings and giving complete satisfaction."

MR. E. B. WHITE, Service Mgr.
Nikart Mtr. Sales Co.
South Bend, Ind.

SHAFER BEARING CORPORATION
6501 West Grand Avenue
CHICAGO, ILL

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ADVANCING WITH THE INDUSTRY THE MAKERS OF

"WHITNEY"

SILENT HIGH MILEAGE CHAINS

have long been working to produce a chain which would satisfy the most exacting demands for quiet timing in the modern refined motor, and at the same time retain the quality of durability for which "WHITNEY" Chains are justly famous.

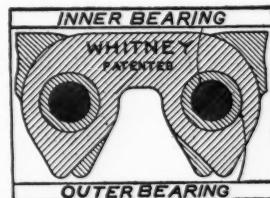
Exceedingly quiet operation without a sacrifice of high mileage is now available in the new

"WHITNEY" ROLLING JOINT TYPE SILENT CHAIN

which is offered as a worthy companion product to the well known

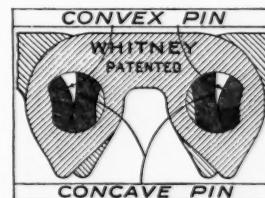
"WHITNEY" DOUBLE BEARING PIN AND BUSHING TYPE

SATISFY YOUR CUSTOMERS BY INSISTING ON "WHITNEY"



ROLLING JOINT TYPE

DOUBLE BEARING PIN AND BUSHING TYPE



Send for the Booklet containing car specification list—It's Free.

The Whitney Mfg. Co. Hartford, Conn.

I want that book on chain specifications

Name.....

Address.....

Service Station Fleet Owner Parts Jobber

A Message from the West to Automotive Specialty Distributors of the East



OUT OF THE WEST comes a tried and tested product of true merit seeking high grade Eastern representation. Five years ago the Winfield carburetor was perfected for racing cars only. Since then, drivers like DePaola, Hartz, Cooper, Milton, McDonough, Hearne, De Palma and others have used the Winfield in race after race, smashing records and setting new ones. In 1925, Winfield-equipped cars won practically every important A.A.A. race held throughout the United States. But while the racing Winfield was making history on the speedway, the same carburetor was being perfected for pleasure cars and highway traffic. Two years ago the Winfield carburetor for all makes and models of cars and trucks first entered the replacement market.

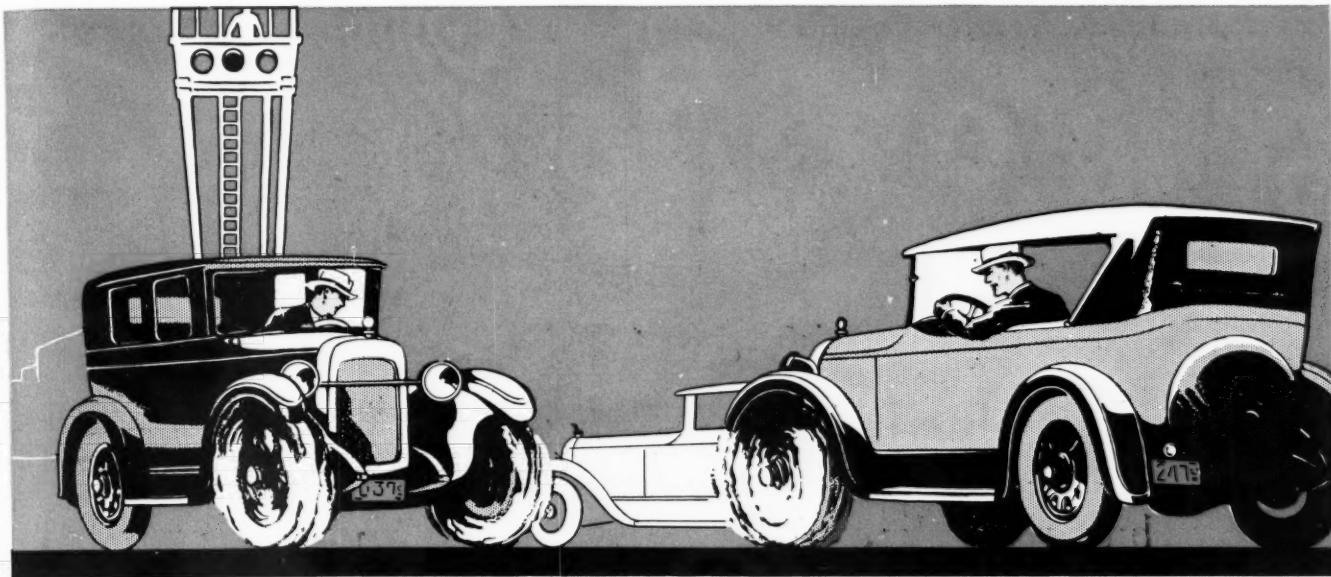
Success was instantaneous. One Winfield sold another. Entire fleets were equipped after rigid tests for speed, acceleration, power and economy. City bus lines and statewide stage lines adopted Winfield. And the car-driving public followed. Winfield carburetors have won the West on performance!

As a result, the California distributor alone is now selling over 500 Winfield carburetors monthly, with a steady increase. This distributor and his dealers absolutely guarantee more speed, faster

acceleration, slower idling, greater power, absence of flat spots and more miles to the gallon of gas. This guarantee goes with any one of the standard installations and is backed up by the manufacturer.

Now, a wider market is sought. That's why this page is addressed to Eastern automotive men. It is an invitation extended to substantial auto specialty distributing firms, or individuals experienced and financed to handle exclusive territory, to investigate the Winfield carburetor; its performance, salability and profit-earning features. This is not a frantic appeal for dealers. Inquiries from retailers will be handled only through the distributors appointed, except in open territory. High grade territorial representation is being sought. Conservative automotive specialty merchandisers are invited to write for a specific proposition. In writing, please use business stationery. Outline merchandising area now covered by salesmen, or otherwise served. Individuals and business houses not rated in Dun's or Bradstreet's are requested to furnish some reference as to financial responsibility. Business men of the type we seek will appreciate these requirements and their bearing on our proposition affecting the territory to be covered. A complete descriptive history of the Winfield; its origin, development, performance and construction, together with an outline of its merchandising success to date and advertising plans, will accompany our proposition to interested parties. Write today.

WINFIELD CARBURETOR CO.
GLENDALE - CALIFORNIA



You Can't See Your Own Wobble

You've met them on the road—dozens of them—cars with the front wheels wobbling like the ones in the picture.

You know that wobble is wearing miles out of the tires.

But does the car owner know of this condition? If he did, he would hurry to the nearest garage to have it fixed. He can see the wobble on the car coming toward him, and the other fellow can see his, but they can't see their own wobbling wheels. Each feels sorry for the other—and blissfully goes on wearing out his own tires.

Here is where you step in and render a service with profit to yourself.

Wobbly front wheels are nearly always due to worn bolts and bushings. Sometimes other causes contribute, but nine times out of ten worn king and tie rod bolts and bushings are the principal cause. King and tie rod bolts do not revolve as do engine bearings or

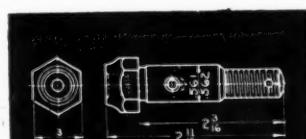
wheel bearings. If they did, lubrication would be easy. Instead they see-saw back and forth—and soon all the grease is worked away from the point of bearing.

Then friction and wear set in. Soon there is a space on one side of the bolt, and the spindle wobbles back and forth on it, wobbling the wheels.

The car steers hard. Tires wear out too quickly. Eventually, if the trouble is not corrected, an unusual bump in the road snaps a bolt and a crash results.

The only safe way is to renew the bolts and bushings.

At least every season it should be done. To neglect it is false economy, and what is saved in repairs is lost in tire wear. And the renewal should be made with Blue Print Bolts and Bushings—made to car manufacturers' blue prints—exact duplicates of the originals in material, parts and workmanship.



"Made to Blue Print"

Watch for the fellow whose front wheels wobble. He's got a profit for you. If you want information to help you sell him the idea write for "The Tale of a Bolt" a series of bulletins filled with bolt and bushing information.



THE FOSTORIA SCREW COMPANY, 311 Blue Print Ave., Fostoria, Ohio

Nothing is More Important to Dealer or Jobber!

By tying up with the AC line, dealers and jobbers are affiliating themselves not only with the most powerful organization in the industry, but with a line which insures them enormous sales possibilities now and for the years to come.

AC Products are nationally known:

AC Spark Plugs are used as equipment on over 148 makes of cars, trucks, tractors and engines.

AC Speedometers are furnished as equipment on more than 50% of the output of present day production of cars.

AC Oil Filters are equipment on more than 50% of the production of cars being equipped with oil filters.

AC Air Cleaners are sent out as equipment on more than 60% of the cars that are equipped with air cleaners.

AC equipment, increasing steadily from year to year, is building a tremendous replacement business which will carry on as long as automobiles are made.

AC Spark Plug Company, FLINT, Michigan

AC-SPHINX
Birmingham
ENGLAND

*Makers of AC Spark Plugs—AC Speedometers
—AC Air Cleaners—AC Oil Filters*

AC-TITAN
Levallois-Perret
FRANCE

AC **AC** **AC** **AC**
SPARK PLUGS SPEEDOMETERS AIR CLEANERS OIL FILTERS